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The Preparation of an ECVET-oriented Nuclear Job Taxonomy: Concept and Progress Report

César CHENEL RAMOS

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INTRODUCTION

This document intends to summarise the developments in the preparation of a Nuclear Job Taxonomy, undertaken by the Institute for Energy and Transport of the Joint Research Centre, European Commission, as part of the institutional action CAPTURE. It provides an overall background on the European Credit System for Vocational Education and training (ECVET) followed by the motivations of the project, the conceptual and methodological approach, the progress achieved and the expectations for the near future.

THE ECVET INITIATIVE

The creation of a European Credit System for Vocational Education and Training (ECVET) was originated with the Copenhagen Declaration[I], which in turn represented an initial step for the implementation of the strategies set up by the Lisbon Council in 2000 for the enhancement of European vocational education and training (VET). This political process –commonly known as the Copenhagen process– received continuity with a number of significant benchmarks:

- Maastricht Communiqué, 14 December 2004 [II]
- Helsinki Communiqué, 5 December 2006 [III]
- Bordeaux Communiqué, 26 November 2008 [IV]
- Bruges Communiqué, 7 December 2010 [V]
- Communication from the Commission of 20th November 2012[VI] and associated Press Release[VII].

These documents, together with the related Council Conclusions, introduced the guidelines that are in the foundations of the Recommendation of the European Parliament and of the Council on the establishment of a European Credit System for Vocational Education and Training, which provided official endorsement to ECVET.

ECVET intends to facilitate the validation, accumulation, recognition and transfer of learning outcomes in order to allow more flexible individual learning pathways and to increase the permeability throughout qualification systems and educational programs both at national and transnational level. It should be interpreted in close connection with other initiatives in the field of education and training, such as Europass, the

European Credit Transfer and Accumulation System and, namely, the European Qualifications Framework (EQF) [VIII] for lifelong learning and the European Quality Assurance in Vocational Education and Training (EQAVET)[IX].

After the adaptation period, the effective implementation of ECVET at national level should take place between 2012 and 2015, with a possible revision of the Recommendation in 2014.

THE PREPARATION OF A NUCLEAR JOB TAXONOMY

"JOB TAXONOMY"?

The word *taxonomy* derives from the ancient Greek τάξις (*taxis*, arrangement) and νομία (*nomia*, method)[X] ; it is typically used in the classification of biological organisms, but can be applied to any categorization in ordered classes or in general to the science of classification. The ECVET-oriented *taxonomy* has become familiar wording among nuclear E&T professionals by means of the present exercise and by the use of the same term in comparable initiatives[XI]. However, its use applied in general to vocational education and training could lead to misinterpretation by identification with initiatives of different nature, namely the European Skills, Competencies and Occupations *taxonomy* (ESCO).

MOTIVATION AND SCOPE

The activities for the preparation of the nuclear ECVET-oriented job taxonomy started at the IET-JRC in 2011 by request of DG RTD and DG EAC, as part of the European Human Resources Observatory for the Nuclear Energy Sector (EHRO-N). The taxonomy has the purpose of contributing to the objectives of EHRO-N by providing a harmonised and structured description of standard jobs. At the present stage it covers the jobs present in the three life-cycle phases of a nuclear power plant (NPP), i.e., New Build, Operation and Decommissioning. Collateral activities such as fuel disposal and research are not included for the time being, neither nuclear sectors not related to the energy production by fission.

ECVET could provide a valuable input in achieving especially these 3 objectives of EHRO-N[XII] (see EHRO-N 2012 Annual Activity Report):

1. Produce and regularly update a quality-assured data base on the short-, medium and long-term needs of human resources for the different stakeholders in nuclear energy and radiation protection, with emphasis on nuclear safety and security. The data should be structured according to the required qualifications (i.e.

disciplines and specializations, main non-academic and academic levels, specific needs for required knowledge, skills and competences).

ECVET could help qualify the figures related to the prospective needs of human resources in terms of profiles, functions and competences.

2. Identify gaps and deficiencies in the European nuclear E&T infrastructure and elaborate recommendations for remedial actions and optimizations, in synergy with the relevant European Technological Platforms and stakeholders' organizations (e.g. ENEF, SNE-TP, IGD-TP, ENSREG, HERCA, etc).

ECVET could help in the design of competence-based E&T, which can contribute to job-targeted learning programs both for the adaptation of non-nuclear professionals and for the post-graduate training of nuclear specialists.

3. Play an active role in the development of European schemes of nuclear qualifications and mutual recognitions, taking advantage of existing EU initiatives -e.g. ECTS (Bologna agenda for academic education) and ECVET (Copenhagen agenda for continuous professional development.

ECVET could help in the development of a common understanding on standard job requirements to promote the mutual recognition of qualifications.

In a wider context, the nuclear job taxonomy aims to provide a specific instrument to favour and harmonise the implementation of ECVET within the DG RTD FP7[XIII] projects committed to the development of the Euratom Fission Training Schemes (EFTS). Currently there are eight Euratom FP7 projects of the EFTS type. They are examples of Euratom responses to the need of specific competences in selected domains, using the ECVET tools:

- TRASNUSAFE: Nuclear Safety Culture
- ENEN III Training schemes: Generation III and IV engineering
- ENETRAP II: European Network on E&T in Radiological Protection
- PETRUS II: Program for Education, Training, Research on Underground Storage
- CINCH: Cooperation in education In Nuclear Chemistry
- CORONA: Regional Centre of Competence for VVER Technology and Nuclear Applications
- EURECA!: Cooperation between EU and Canada in Education, Training and Knowledge Management on Super-Critical Water Reactors
- GENTLE: Graduate and Executive Nuclear Training and Lifelong Education

THE NUCLEAR ECVET WORKSHOPS

The preparation of the taxonomy has been mostly attained by the organisation of a series of workshops –three until today– participated by internal an external professionals with experience in human resources, training and education, or with operational experience in NPPs. Their different backgrounds and provenance has offered a balanced national representation as well as presence of the main types of stakeholders and actors relevant to the nuclear human resources (utilities, operators, academia, consultancies, public administration…)

The increasing number of participants in the successive workshops together with the regular partaking of some of them has outlined a pool of contributors numerous and stable enough to foster positive expectations for the continuity of the project. Furthermore the third workshop initiated a cooperation with the European Centre for the Development of Vocational Training (Cedefop). The feedback and guidance of this institution should help to align the nuclear taxonomy with the specifications of ECVET and of the other European initiatives in E&T.

The three workshops followed a similar schedule. General principles of ECVET, definitions, concepts and methodological proposals were presented and discussed in the initial sessions. The main part of the workshops was devoted to the draft and review of job profiles, which most of the time took place in two separate work groups divided by area of expertise. Before the closure, there was a summary of results and discussion on actions and modifications to introduce. Given the familiarity acquired by some of the experts and the consolidation of the approach, progressively less time was necessary for the theoretical debate.

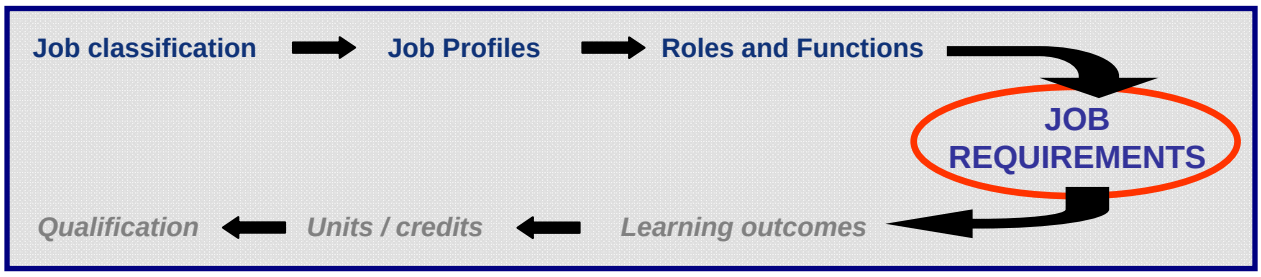
The conclusions of these discussions have brought the adoption of continuous improvements. By request of the experts the KSC Catalogue has been widely enlarged from its initial version. The template for the job profiles has undergone several modifications, the main one to allow the separate insertion of knowledge, skill and competence items. In addition, the list of jobs has been subject to permanent revision derived from the findings from the scrutiny of the job positions as they were drafted.

At the same time, the work organisation changed by shifting from joint preparation of the profiles to individual work followed by subsequent review, what allowed a faster pace in the preparation of drafts.

METHODOLOGY AND CONCEPTUAL PRINCIPLES

ECVET APPLIED TO THE NUCLEAR JOBS

The main added value provided by the ECVET approach to the description of nuclear jobs results from the adoption of the concept of competence and its application to the definition of the job requirements. Moreover one of the main benefits of the finalised taxonomy should lie in its use for the identification of learning outcomes useful to build up qualifications. Therefore the focus of the job taxonomy was set in a detailed and clear definition of the job requirements –as components of a qualification under the perspective of the labour market. The preparation of the job taxonomy has consequently trailed the flowchart below, spanning along the four initial steps and with the stress set on the fourth one, bound to serve as bridge towards the design of qualifications.



Considered in the wider frame of the overall implementation of ECVET, the development in the nuclear area represents a singular initiative for spanning across all the levels of the EQF, but with the focus set to a great extend on the higher ones. This poses the challenge of tackling issues still to be solve, particularly the mechanisms to create permeability and synergies with the ECTS.

LIST OF JOBS AND JOB DESCRIPTIONS

The classification of positions took as initial premise an overall division into the NPP life-cycle phases New Build, Operation, Decommissioning. Further to this, the identification of sub-areas and jobs was guided by the goal of simplification: it should consist of typical generic jobs easily recognised, not reflecting each single possible post existing in every organisation. Additionally every profile is marked with the job category (craft, technician, professional) and the minimum academic entry level [XIV] is given for information.

Clarity is favoured by keeping the job titles as short as possible. In order to overcome the confusion caused oftentimes by the different use of job titles in different national or organisation contexts, alternative job titles are included in the profiles when considered necessary. Possible specialisations can be also inserted as alternative job titles. The academic entry level and the professional categories showed also different criteria for their attribution, what obliged to certain flexibility in the definition.

Another issue was the identification of very similar jobs in more than one life-cycle phase –sometimes even sharing exactly the same job title. Although each of these cases has to be examined thoroughly, it is probable that often they might share almost the whole set of job requirements, although the definition of roles and functions may need probably some to be adapted.

THE CONCEPT OF COMPETENCE

Intrinsically an ECVET-oriented taxonomy should provide a competence-based description of the jobs. This made necessary to reach a common understanding of the concept of *competence*. In the ECVET documentation[XV] competence is described as a holistic notion, consisting of cognitive, technical and behavioural aspects, each of them necessary for the complete definition of the job requirements. The table below[XVI] illustrates the nature of the components of the competence.

	personal	***occupational***	
conceptual	Meta-competence (facilitating learning)		Cognitive competence
operational	Social competence (attitudes and behaviours)	Functional competence	

These components find a direct correlation with the definitions given by the European Qualifications Framework[XVII], leading to the following association:

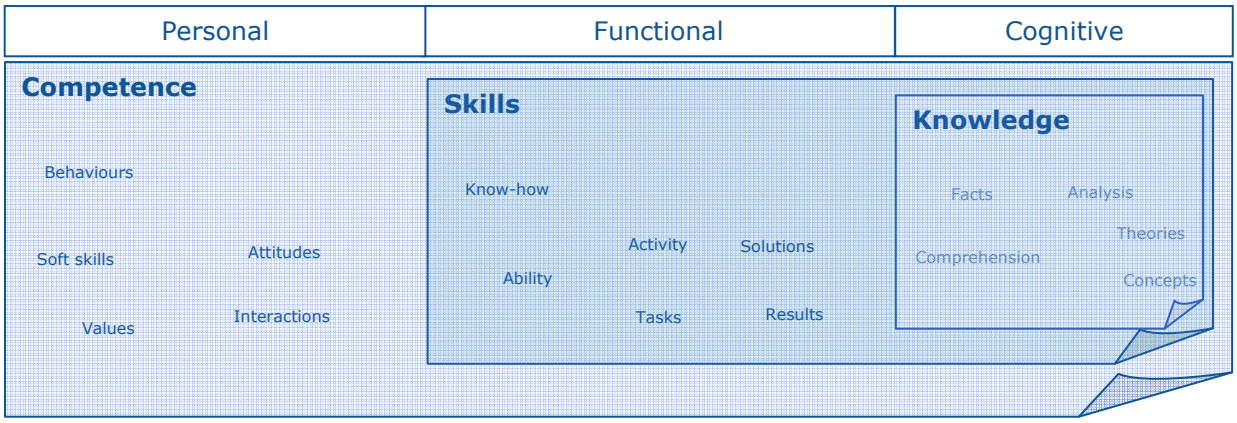
Knowledge: Cognitive competence (occupational-conceptual)

Skill: Functional competence (occupational-operational)

Competence: Personal competence (conceptual and operational)[1]

Despite this analytical view, competence only becomes fully meaningful when this three components are integrated, each adding a dimension or a "layer" to the whole, as it is represented in the figure below.

[1] Nevertheless the European Qualifications Framework applies personal competence with a limited scope, reduced to aspects related to "autonomy and responsibility"



It is worth to point out that the term *competence* can also denote elements of personal competence –which in the nuclear sector are usually named *attitudes*– giving place to some terminological confusion.

JOB REQUIREMENTS

According to the competence typology summarised in the previous paragraph and with the consideration to the job requirements as the core element of the taxonomy, some guidelines were adopted for their description in the job profiles. They are meant to encompass all the aspects involving competence, while attending to practical aspects aimed to ease the formulation and to achieve the utmost clarity. Even so, the account of job requirements aims to be as exhaustive as achievable. Knowledge, skill and competence (attitude) items are inserted in separate sections, keeping every entry brief and concise. Knowledge describes contents in a fashion similar to the account of an academic syllabus; it is preferable to avoid omission of contents for assuming them included of the entry qualification, as this does not comply with the principles of flexible pathways and life-long learning that are essential to ECVET. Skills should contain a verb or some other action word to denote the capability to execute tasks producing concrete outcomes, either material or intellectual; finally, attitudes and (inter-)personal competence items are entered under "competence". The table below[2] explains this with more detail and provides some examples.

[2] Excerpt from *3rd ECVET Nuclear Workshop – Guidelines for participants*

JOB REQUIREMENTS	
The items under "job requirements" (KSCs) should not include description of the degree of expertise or proficiency, since this is given by the **EQF descriptor** number on the right column. To improve clarity and facilitate the progress, some items of knowledge and skills can be grouped, provided they belong to the same field and the EQF level applicable is the same for all of them. Example: *- General management: budget management, business improvement, financial management, human resources , QSE, planning, monitoring and evaluation, risk assessment*	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Items (included or not in the KSC catalogue) referring to **concepts and facts** that should be **distinguished, identified and/or understood**; similar to the contents of an academic syllabus. Examples: *- Sensors, measurement and signal processing* *- Finance and administration – budget management* *- Physics – material science – mechanical vibrations*	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Items (included or not in the KSC catalogue) referred to the **ability to carry out tasks –physical or intellectual-** resulting in a **concrete outcome.** Examples: *- Monitor and report construction costs status during construction period.* *- Specify non-destructive testing instructions for metallic samples.* *- Check and calibrate dose measurement instruments.* The skills are typically formulated by a verb (or action word) followed by an object, and can also explicitly mention the resources or tools to employ and the finality or expected result. Examples: *- Produce engineering drawings using computer aided techniques.* *- Draft technical specifications for the design of mechanical components.*	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Personal and interpersonal attributes (included or not in the KSC catalogue) required for the function, but which could be also applied in diverse work or social situations. Examples: *- Negotiation skills* *- Team working* Most of the items in the list "competence" are in general desirable attributes for every individual; nevertheless those that are crucial for the performance in the concerned position should be identified and inserted up to a limited number for each profile (aprox. 5 – 8 items)	

Qualifiers such as "advanced", "basic", "good" are avoided. Instead, the competence items are graded by the inclusion of a number indicating the applicable EQF descriptor level. This allows keeping a succinct description of the job requirements, reduces the risk of ambiguity, and provides a practical reference for the translation of the job requirements into learning outcomes as part of qualifications.

Nevertheless the use of the EQF descriptors, despite been an efficient tool for marking competence, poses also some issues. When designing a qualification, typically the same level is applied to every learning outcomes; the same approach has been ascertained unrealistic when referred to the competences actually needed for performing a job position for which, among the array of capabilities identified, each one may demand its own level of proficiency. On the other hand, the application of EQF levels to personal competence considered separately can be tricky in practice.

STATUS AND FURTHER DEVELOPMENTS

The outcome as of today achieve by the activities on the nuclear job taxonomy consists of three elements developed in parallel and closely interrelated with each other:

- The List of jobs in Annex I

- The KSC catalogue with around 650 entries listing separately knowledge, skill and competence items organised by field.

- First drafts for ninety-seven profiles plus first revision for seven of them (Annex II)

Although all three are still in progress, the preliminary results have reached enough entity to be published in short in the EHRO-N website[3], probably in the form of relational databases.

The work in the immediate future should head towards the finalisation of the draft profiles followed by a methodical review. In order to streamline the progress, it is planned that every job profile undergoes a three-step process: draft, peer review, group review. The goal is to carry out the first two tasks individually –either at IET with in-house resources or with the contribution of the pool of experts. This would allow dedicating future workshops solely to the group review. This should be helped with the enlargement and improvement of the KSC catalogue in order to make it a more efficient tool and to ensure its consistency with the content of the job profiles.

The aforementioned procedure needs to be accompanied with efforts in communication about the basic guidelines with the aim of standardising the outcome and enhancing the overall quality:

- Ensure a common understanding on the definitions of knowledge, skill and competence, the items under each category and their formulation.

- Apply the EQF levels more consistently, detached from the assigned entry qualification level and considered individually for each competence item, taking into account solely the real demands of the post.

- Complete uniformly the job requirements in its three categories, stressing the importance of the skills (technical competence), which in some profiles include too limited number of items.

- Increase harmonisation in particular aspects such as applying standard designations to the job titles according to the professional category; limiting the number of items to include under competence (attitude) by identifying the most relevant ones for every

[3] http://ehron.jrc.ec.europa.eu/

job; meeting a common criteria for the inclusion of more specific KSCs, correlated with the EQF level.

Finally yet importantly, it is necessary at this stage of progress to introduce mechanisms for quality assurance. These could involve a review by relevant stakeholders, such as the EHRO-N Senior Advisory Group and the custom EC DGs, as well as a "reality check" carried out with the participation of industry actors and/or by systematic scrutiny of the profiles against information obtained from desk research.

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[XV] Terminology of European education and training policy, CEDEFOP 2008

[XVI] Excerpt from: *Typology of knowledge, skills and competences: clarification of the concept and prototype*, CEDEFOP 2005

[XVII] Recommendation of the European Parliament and of the Council (2008/C 111/01), Annex 1

ANNEX I: LIST OF JOBS

1. NEW BUILD		
1.1. SITE LOCATION	1.1.01	Site Characterisation Manager
	1.1.02	**Licensing Manager**
	1.1.03	Nuclear Engineer
	1.1.04	Health and Safety Officer
1.2. DESIGN	1.2.01	Design Manager
	1.2.02	**Civil Design Technician**
	1.2.03	Electrical Design Technician
	1.2.04	**Mechanical Design Technician**
	1.2.05	**Mechanical Design Engineer**
	1.2.06	**Civil Design Engineer**
	1.2.07	**Electrical Design Engineer**
	1.2.08	**I&C Design Engineer**
	1.2.09	**System Design Engineer**
	1.2.10	**Safety Design Engineer**
	1.2.11	Project Integration Engineer
1.3. CONSTRUCTION	**1.3.01**	**Construction Project manager**
	1.3.02	Transverse Engineer
	1.3.03	Mechanical Discipline Engineer
	1.3.04	Mechanical Construction Engineer
	1.3.05	Civil Construction Engineer
	1.3.06	**Electrical Discipline Engineer**
	1.3.07	**Electrical Construction Engineer**
	1.3.08	I&C Discipline Engineer
	1.3.09	I&C Construction Engineer
	1.3.10	Mechanical Construction Technician
	1.3.11	Civil Construction Technician
	1.3.12	Electrical Construction Technician
	1.3.13	I&C Construction Technician
	1.3.14	Mechanical Construction Worker
	1.3.15	Civil Construction Worker
	1.3.16	Electrical Construction Worker
	1.3.17	I&C Construction Worker
	1.3.18	Occupational Safety Manager
	1.3.19	Quality Control Manager
	1.3.20	Quality Control Technician
	1.3.21	Environmental Manager
	1.3.22	Welder
	1.3.23	Locksmith
	1.3.24	Test Engineers/Technicians/Workers
1.4. COMMISSIONING	**1.4.01**	**Electrical Commissioning Engineer**
	1.4.02	**Mechanical Commissioning Engineer**
	1.4.03	Civil Commissioning Engineer
	1.4.04	**I&C Commissioning Engineer**
	1.4.05	System Commissioning Engineer
	1.4.06	Commissioning Manager
	1.4.07	**Licensing Manager**
	1.4.08	Permission-to-work Officer
	1.4.09	Permission-to-energize Officer
	1.4.10	Commissioning Crew

2. OPERATION		
	2.0.01	**Plant Manager**
2.1. NUCLEAR OPERATIONS AND WASTE MANAGEMENT	2.1.01	Operation Planning Officer
	2.1.02	**Licensing Officer**
	2.1.03	**Production Manager**
	2.1.04	**Training Officer**
	2.1.05	**Quality Assurance Officer**
	2.1.06	**Engineering Manager**
	2.1.07	**Operation Manager**
2.2. OPERATORS IN CONTROL ROOM	**2.2.01**	**Shift Engineer**
	2.2.02	**Reactor Manager**
	2.2.03	**Operator**
	2.2.04	**Reactor Operator**
	2.2.05	**Turbine Operator**
2.3. OPERATORS IN THE FIELD	**2.3.01**	**Field Operator Technician**
	2.3.02	**Field Operator Worker**
2.4. WASTE MANAGEMENT & RP	**2.4.01**	**WM&RP Manager**
	2.4.02	**Radiation Protection Officer**
	2.4.03	**Radiation Protection Worker**
2.5. CHEMISTRY	**2.5.01**	**Chemistry Manager**
	2.5.02	Chemistry Supervisor
	2.5.03	**Chemistry Operator II**
	2.5.04	**Chemistry Operator I**
2.6. SAFETY AND SECURITY	**2.6.01**	**Safety and Security Manager**
	2.6.02	Industrial Safety Technician
	2.6.03	**Industrial Safety Supervisor**
	2.6.04	**Fire Protection Worker**
	2.6.05	**Fire Protection Supervisor**
	2.6.06	**Environmental Supervisor**
	2.6.07	Security Manager/Supervisor
2.7. MAINTENANCE	**2.7.01**	**Electrical Technician**
	2.7.02	**Electronic-I&C Technician**
	2.7.03	**Mechanical Maintenance Technician**
	2.7.04	**Electrical Worker**
	2.7.05	**Electronic-I&C Worker**
	2.7.06	**Mechanical Worker**
	2.7.07	**Electrical Supervisor**
	2.7.08	**Electronic-I&C Supervisor**
	2.7.09	Mechanical Supervisor
	2.7.10	**Process Equipment Technician**
	2.7.11	**Welder**
	2.7.12	Operational Locksmith
	2.7.13	**Maintenance Manager**
	2.7.14	**Maintenance Planning Officer**
	2.7.15	**Civil Engineering Technician**
	2.7.16	**Process Equipment Engineer**
2.8. ENGINEERING	2.8.01	Mechanical Design Engineer
	2.8.02	Civil Design Engineer
	2.8.03	Electrical Design Engineer
	2.8.04	I&C Design Engineer
	2.8.05	System Design Engineer
	2.8.09	Safety Design Engineer
2.9. CANDU	**2.9.01**	**Fuel Machine Operator**
	2.9.02	**System Responsible Engineer**

3. DECOMMISSIONING		
3.1. MANAGEMENT	**3.1.01**	**Project Manager**
	3.1.02	**Contractors Manager**
	3.1.03	**Management System Manager**
	3.1.04	**Training Manager**
	3.1.05	**Licensing Manager**
	3.1.06	**Communication Manager**
	3.1.07	**Financial Manager**
	3.1.08	**Site Manager**
3.2. DECONTAMINATION	**3.2.01**	**Decontamination Planner**
	3.2.02	**Decontamination Supervisor**
	3.2.03	**Decontamination Worker**
3.3. PREPARATORY WORK FOR DECOMMISSIONING	**3.3.01**	**Site Engineer**
	3.3.02	Spent Fuel Management Engineer
	3.3.03	**Engineering Support Manager**
	3.3.04	**Decommissioning Planner**
	3.3.05	**Decommissioning Supervisor**
	3.3.06	**Decommissioning Operator**
	3.3.07	**Decommissioning Worker**
3.4. DISMANTLING/ EQUIPMENT	**3.4.01**	**Dismantling Planner**
	3.4.02	**Dismantling Supervisor**
	3.4.03	**Dismantling Worker**
3.5. DEMOLITION	**3.5.01**	**Demolition Planner**
	3.5.02	**Demolition Civil Engineer**
	3.5.03	**Demolition Worker**
3.6. SITE CLEAN UP AND RELEASE	3.6.04	Clean up Supervisor
	3.6.02	Clean up Worker
3.7. RADIOACTIVE WASTE	**3.7.01**	**Radioactive Waste Manager**
	3.7.02	**Radioactive Waste Engineer-characterisation**
	3.7.03	**Radioactive Waste Engineer - processing**
	3.7.04	Radioactive Waste Worker - characterisation
	3.7.05	**Radioactive Waste Worker - processing**
	3.7.07	**Transport responsible**
3.8. MAINTENANCE	**3.8.01**	**Maintenance Engineer – Manager**
	3.8.02	**Maintenance Supervisor**
	3.8.03	**Maintenance Worker**
3.9. HEALTH, SAFETY AND ENVIRONMENT	**3.9.01**	**Radiation Protection Manager**
	3.9.02	**Radiation Protection Supervisor**
	3.9.03	**Radiation Protection Worker**
	3.9.04	**Industrial Safety Manager**
	3.9.05	**Safety Case Expert**
	3.9.06	**Environmental Manager**
	3.9.07	**Health Physics Technician**
	3.9.08	**Chemistry and Radiochemistry Manager**
	3.9.09	**Nuclear Laboratory Technician - Chemistry**

Draft profiles available for the items in bold

ANNEX II. JOB PROFILES

1.1.02	Job Title	Category
NPP – N Site Location	**Licensing Manager** Permitting Manager	Professional
Managing all aspects of the licensing process and interfacing with the regulatory authorities		Entry level qualification ISCED 7

Roles / Functions
• Ensuring that licensing documents are in compliance with the regulations • Interfacing with the regulatory authorities and stakeholders. • Control the implementation of licensing requirements. • Assist the departments for compliance with requirements from the regulators.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Environmental compliance	7-8
Understanding of complex regulations	7-8
Regulation and licensing / All legislation, policies and procedures in the nuclear field. Environmental regulations.	7-8
Nuclear power plant	5-7
Integrated management system	5-6
Project management: budget, human resources, scope, risk assessment	5-6
Requirements management system	5-6
Nuclear safety: risk assessment, radiation protection/health physics, radiological contamination, emergency preparedness	5-6
Security and safeguards	5-6
Communication techniques: Negotiation, presentations, writing	4-5
Finance and administration	4
SKILLS (Technical competence, abilities)	EQF level (1-8)
Compiling and analysing the licensing requirements	
Planning, scheduling, and ensuring the timely completion of the licensing process and the related documents	
Overseeing the preparation of the licensing documentation	
Arguing safety in front of political instances, regulators, technical experts.	
Interfacing with	
Ability to understand, review and correct scientific/technical specs.	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

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24-03-2012		

1.2.02	Job Title	Category
NPP – N Design	**Civil Design Technician** --	Technician
Responsible for the design of specific civil systems within specified rules and guidelines.		Entry level qualification: *ISCED 1-8*

Roles / Functions

- Executing all the tasks necessary to ensure the design and correct procurement for structures, architecture and civil engineering services on the construction project.
- Prepare conceptual and/or detailed layout designs of structures.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Building construction, Metallic, concrete constructions	
Nuclear Science, nuclear power plant systems and principal components	
Nuclear safety - general	
Structural engineering – wave propagation	
Structural assembly	
Material science and buildings resistance	
Structure vibrations	
Human factor engineering	
Computer aided design and engineering	
Design standards and regulatory requirements	
Civil engineering domain	
Geotechnology	
3D design software : space geometry, design generation, assembly	
Kinematics bases	
Rules of the industrial designing	
Informatics, and network administration	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Use technical information and technical documents	
Write technical specifications related do civil engineering drawing	
Update existing designs based on new building technologies, new specifications or requirements, new regulations	
Interface with other discipline groups (such as process design & piping, electrical design, HVAC design ...) as needed to ensure complete equipment requirements are defined and/or solutions are provided.	
Interpret building technical specifications to translate them into design	
Participate to the building of the technical specifications to be transmitted to the sub-contracting companies	
Calculate, dimensions the various facilities to define the needs in terms of materials on the technical and price aspects	

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
O. DERUELLE		
26.10.2012		

1.2.04	Job Title	Category
NPP – N Design	**Mechanical Design Technician** --	Technician
Undertake work on mechanical components and systems to ensure compliance with project procedures, quality assurance requirements, schedules, budgets, industry standards and regulations		Entry level qualification: ISCED --

Roles / Functions

- Contribute as a member of a team that provides engineering design, analysis or hands-on work including preparation of design documentation in the area of the mechanical design of the reactor, plant systems and related components.
- Provide technical or hands-on contribution for a variety of equipment including their selection and sizing, support to related development and verification testing, and maintenance, repair, and operation.
- Contribute to documentation including, but not limited to assessment documents, performance analysis, design requirements, design manuals, installation and commissioning documents, registration and equipment technical specifications.
- Assist with recommendations, taking into consideration the feedback from the existing plants as well as client and project requirements.
- Perform general or specific hands-on activities including the operation, maintenance and repair plant equipment or specialized tooling or test equipment and systems.
- Interface with other disciplines as required.
- Assist supervision or management with the preparation of detailed planning and budgeting information as required.
- Conduct work in accordance with quality assurance requirements both for safety-related systems, components and structures; and pressure-retaining systems, components and structures in accordance with the applicable codes including the execution of the necessary design verification activities.
- Contribute to work plans and resource requirements for the production of deliverables.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Mechanical equipment maintenance, inspection, testing and commissioning	4
Maintaining, servicing and repairing of mechanical equipment /components	4
Mechanical Engineering	4
Electricity	3
Nuclear Science, Nuclear Power Plant Systems and Principal Components, Basic Nuclear Safety	3
Equipment Management	3
Material Science	3
Physical Metallurgy	3
Using and interpreting Technical Writing	3
Fluid Mechanics	3
Thermodynamics	3
Mechanic of Vibrations	3
Design Standards and regulatory requirements	3
Thermal Limits in Nuclear Fuels	3
NPP systems and components	2
Planning capacity	2
Computer and IT literacy	2
Quality Assurance	1

SKILLS (Technical competence, abilities)	EQF level (1-8)
Mechanical equipment maintenance, inspection, testing and commissioning	4
Maintaining, servicing and repairing of mechanical equipment /components	4
Carrying out preventive maintenance procedures	3
Preparing Reports	3
Monitor and maintain the quality of processes	3
Conduct assessment of risk in the workplace	2
Maintenance of a healthy, safe workplace	2
Operating computers using a variety of software	1
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication skills	3
Team Working	3
Motivation	3
Accountability	3
Punctuality	3
Capacity to act upon problems	3
Multitasking	3
Stress resistance	2
Self-development	2

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23.10.2012		

1.2.05	Job Title	Category
NPP – N Design	**Mechanical Design Engineer** --	Professional
Responsible for the design of specific mechanical systems within specified rules and guidelines.		Entry level qualification: ISCED 6

Roles / Functions

- Carry out and/or coordinate the conceptual/detailed design of NPP components, ensuring compliance with regulatory and quality standards, preparing the necessary documentation and reporting.
- Interfacing with suppliers and with other departments.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Mechanic of Vibrations	6-8
Materials for Nuclear Applications	6
Mechanic of Materials	6
Computer Aided Design and Engineering	6
Detailed knowledge in Mechanical Engineering	6
Fluid Mechanics	4-6
Thermodynamics	4-6
Thermal Limits in Nuclear Fuels	3-6
Design Standards and regulatory requirements	3-5
Nuclear Science, Nuclear Power Plant Systems and Principal Components, Basic Nuclear Safety	3-4
Material Science	3-4
Physical Metallurgy	3-4
Technical Presentations	3-4
Technical Writing	3-4
Electricity	3
Equipment Management	2-3
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Conceptual and detailed designed of given components.	
Evaluation of existing designs	
Management of Component databases	
Interpretation of technical specifications to translate them into design	

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

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1.2.06	Job Title	Category
NPP – N Design	**Civil Design Engineer** --	Professional
Responsible for the design of specific civil systems within specified rules and guidelines.		Entry level qualification ISCED 6

Roles / Functions

- Executing all the tasks necessary to ensure the design and correct procurement for structures, architecture and civil engineering services on the construction project.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Structure vibrations	6-8
Structural engineering – wave propagation	6-8
Structural assembly	6-8
Building construction	6-8
Computer aided design and engineering	6
Civil engineering domain	6
Design standards and regulatory requirements	3-5
Nuclear Science, nuclear power plant systems and principal components	3-4
Nuclear safety - general	3-4
Material science	3-4
Construction engineering management	3
Human factor engineering	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Carry out environmental evaluation of building and structures (footprint)	
Preparation of conceptual and detailed layout designs of structures.	
Presenting technical information and drafting technical documents	3-4
Updating existing designs based on new building technologies	
Long-term building structure behaviour analysis and calculations	
Interpret building technical specifications to translate them into design	
Management of building teams and projects	

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

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14/10/2011		

1.2.07	Job Title	Category
NPP – N Design	**Electrical Design Engineer** Electrical System Design Engineer (1) Electrical Equipment Design Engineer (2) Electrical Safety Evaluation Engineer (3)	Professional
Responsible for the design of specific electrical power systems and layouts within specific rules and guidelines.		Entry level qualification ISCED 6
Roles / Functions		
• Executing other the tasks necessary to ensure the design and correct procurement for electrical equipment and systems.		

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Structure vibrations	6-8
Structural engineering – wave propagation	6-8
Structural assembly	6-8
Building construction	6-8
Computer aided design and engineering	6
Civil engineering domain	6
Design standards and regulatory requirements	3-5
Nuclear Science, nuclear power plant systems and principal components	3-4
Nuclear safety-general	3-4
Material science	3-4
Construction engineering management	3
Human factor engineering	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Conceptual design of auxiliary power supply architecture (1)	
Detailed design of electrical equipments (2)	
Detailed design of power supply systems for normal and emergency operation (1)	
Evaluation of existing designs during disturbances (3)	
Evaluation of response of the electrical system during internal and external events (3)	
Interfacing with related disciplines (I&C, Mechanical)	
Provide overall balance of electrical systems (1)	
Overall cabling layout	

Documentation of the work	
Interpretation of technical specifications to translate them into design	
Coordination of technical teams	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

NOTES
(1) (2) (3) Competences specific of the specialisations listed in the job title

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1.2.08	Job Title	Category
NPP – N Design	**I&C Design Engineer** --	Professional
Responsible for the design of specific instrumentation and control systems within specified rules and guidelines.		Entry level qualification ISCED 6
Roles / Functions		
•		

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Computer engineering-general	6-8
Nuclear instrumentation	6-8
Computer science and programming	6-8
Analogue and digital I&C engineering	6-8
Sensors, measurements and signal processing	6-8
Software engineering	6-8
Computer aided design, engineering and V&V	6-8
LAN engineering	5
Nuclear Science, nuclear power plant systems and principal components	3-4
Nuclear Physics: radioactive decay, neutron-matter interaction	3-4
Human factor engineering	
Design standards and regulatory requirements	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Conceptual design of I&C systems architecture	
Detailed design of safety related I&C systems	
Detailed design of operational I&C systems	
Validation and verification of I&C systems and architecture (hardware and software)	
Detailed design of I&C software and hardware within specified requirements	
Documentation of the work	
Interpretation of technical specification to translate them into design	

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

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1.2.09	Job Title	Category
NPP – N Design	**System Design Engineer** Reactor cooling system Design Engineer Moderation System Design Engineer	Professional
Responsible for the design of a specific system of the NPP within specified rules and guidelines.		Entry level qualification ISCED 6
Roles / Functions		
•		

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Thermo-hydraulics	6-8
Computer aided design, engineering and V&V	6-8
Process system reliability and safety	6
Nuclear Physics: radioactive decay, neutron-matter interaction	5-6
Design standards and regulatory requirements	5
Nuclear Science (*)	4-7
Operation and principal components (*)	4-7
Nuclear safety – general (*)	4-7
Deterministic and probabilistic risk assessments	4-7
Nuclear power plant systems (*)	4-7
Nuclear instrumentation	4-5
Human factor engineering	4-5
Sensors, measurements and signal processing	4-5
Structural assembly	4-5
Welding	3-4
SKILLS (Technical competence, abilities)	EQF level (1-8)
Conceptual design of the specific system of the NPP	
Detailed design of the specific system of the NPP in different operation modes: normal, failure, emergency.	
Detailed design of the main components of the concerned system	
Documentation of the work	
Interpretation of technical specifications to translate them into design	
Coordination of technical teams	

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

NOTES
(*) The EQF level of these items shall vary depending on the specialisation (cooling, moderation)

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1.2.10	Job Title	Category
NPP – N Design	**Safety Design Engineer** Safety Analysis Engineer	Professional
Responsible for the safety analysis of different NPP systems within specific rules and guidelines		Entry level qualification ISCED 7

Roles / Functions

- Analyse and review the studies on the theoretical and practical safety issues linked to the design of NPPs
- Compilation of relevant input data for the construction of safety analyses (transient analyses,
  probabilistic analyses, accident severity, radiation protection, etc…) for NPPs
- Implementation, evaluation, appraisal and documentation of the appropriate analyses using
  computer programs (for example RELAP, MNCP, CATHARE)
- Compilation of licensing documentation for submitting to regulators and expert organizations

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Applied Nuclear Physics	6
Reactor Analysis and Design	6
Reactor Dynamics and Control	6
Heat generation and removal in reactor systems	6
Confinement of radioactive material	6
Radioactive waste management	6
Radiation protection	6
Accident analysis	7
Fundamentals of nuclear safety	7
Nuclear safety methods	7
Nuclear thermal-hydraulics	7
Reactor Thermal hydraulics	7
Nuclear engineering design	5
National and international regulations	7
SKILLS (Technical competence, abilities)	EQF level (1-8)
Use computer tools for safety analysis	7
Perform Probabilistic safety analysis	7
Perform Deterministic safety analysis	7
Identification of safety requirements	7
Analyse and interpret the results of safety tests	7
Use and interpret engineering data and documentation	6
Produce nuclear safety documentation	6
Ensuring compliance with statutory regulations and organisational safety requirements	6
Comply with complex regulations and procedures	6

Communicate effectively with other project members and stakeholders	6
Assist in performing safety critical experiments on small-scale installations	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Analytical thinking	7
Accountability	7
Critical analysis	7
Eye for detail/accuracy	6
Communication – capacity to communicate technical or specialised information	6
Team working	5

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T. BERKENS		
24.10.2012		

1.3.01	Job Title	Category
NPP – N Construction	**Construction Project Manager** --	Professional
Supervises and directs the construction of the NPP according to the design requirements		Entry level qualification ISCED 7

Roles / Functions

- Management of all aspects related to the construction of the NPP
- Integration of contractors and subcontractors in the overall time schedule
- Interface between contractor and designer
- Ensure safe development and implementation of the construction activities and the production of the required safety and engineering documentation.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Project management: planning and scheduling	7
Civil engineering: building construction, Construction eng. Management,	6-7
Logistics and supply of needed resources, materials, consumables and components	6
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control	5-6
General management: budget management, business improvement, financial management, hhrr , QSE, planning, monitoring and evaluation, risk assessment	5
Applicable construction regulations and permits	5
Computer and IT literacy	4-5
Testing and inspection, quality assurance in const.	4
Communication techniques	4
Radiation protection and nuclear safety	3
Building construction	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Planning, implementing and monitoring activities and projects	6
Using and interpreting data, documentation, diagrams and drawings	6
Coordinating response to contingency	6
Communicating effectively	6
Costs controlling	6
Manage, negotiate, direct, control subcontractors	6
Schedule working processes and prioritising tasks	6
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	6
Lead and enforce safety culture	6
Preparing records and graphs	5-6
Supplying information for management control	5-6
Organising and managing engineering operations	5-6
Review quality management processes	5

Overseeing and applying complex regulations and procedures	4-5
Identification of safety requirements	4
Managing personal developing and monitoring performance	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Volition: capability of getting things done (challenging)	6
Conscientiousness	6
Decisiveness: capability to make judgment and decisions	6
Team leadership	6
Capacity to mobilise people	6
Communication skills	6
Dealing with difficult situations and problem solving	6
Accountability	6
Planning and evaluation	6
Multitasking and priority setting	6
Perseverance	6
Assertiveness	6
Stress resistance	6

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24-02-2012	24-02-2012	

1.3.06	Job Title	Category
NPP – N Construction	**Electrical Discipline Engineer** Electrical Discipline Leader	Professional
Support and oversee the construction of the electrical systems and installation of components in a time schedule on a group level to support the construction and commissioning of the NPP in accordance to design specifications		Entry level qualification ISCED 7

Roles / Functions

- Provide management of the electrical engineering discipline with respect to plant design, construction, and commissioning needs.
- Manage the performance and development of assigned electrical engineering personnel relative to site and corporate objectives and provide focus on the attainment of high-quality and compliant engineering results.
- Review and approval of provided documentation, drawings, reports and detailed equipment specifications.
- Ensure the quality of engineering and technical support services in conformance with established Programs, Policies, Processes, Regulations and appropriate contractual requirements.
- Maintain configuration management control of nuclear power plant design information for the assigned discipline.
- Ensure compliance with applicable codes, standards, licenses, permits, and permissions governing the design, engineering, construction and operation of nuclear power plant.
- Provide plant construction and commissioning support.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Electrical systems and equipment installations	6-7
Electrical and Electronic Circuits	5-6
Electrical Engineering	5-6
Electrical Safety	5-6
Cabling	5-6
Electrical Supply	5-6
Industrial Safety	4-5
Electric Power Generation	4
Electric Power System Analysis and operation	4
Electric Power System Protection	4
Engineering Graphics and technical drawing	3-4
Power Plant Systems	3-4
Computer-aided engineering / Computers and Engineering Problem Solving	3
Control and Automation Systems	3
General Mechanical Engineering	3
General Nuclear Engineering	3
Technical Writing	3
Electrical instrumentation	3
High Voltage Engineering	3
Systems Design	2

SKILLS (Technical competence, abilities)	EQF level (1-8)
Inspection and testing of electrical equipment	6
Using and interpreting electrical schemes	5
Identification of safety requirements	5
Complying with statutory regulations and organisational QSE requirements	4-5
Ability to implement regulations and procedures	4-5
Producing Technical Information for Engineering Activities	4-5
Retrieving Electrical Engineering Drawings using Computer Aided Techniques	4-5
Preparing proposals for technical modifications	4
Using and interpreting engineering data and documentation	4
General management	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Dealing with Difficult Situations	5
Analytical thinking	5
Capacity to act upon problems	5
Conscientiousness	5
Team Working	4
Accountability	4
Corporate Culture	4
Planning and evaluation	4
Priority setting	4

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1.3.07	Job Title	Category
NPP – N Construction	**Electrical Construction Engineer** --	Professional
Support and oversee the construction of the electrical systems and installation of components in a time schedule on a group level to support the construction and commissioning of the NPP in accordance to design specifications		Entry level qualification ISCED 7

Roles / Functions

- Provide management of the electrical engineering discipline with respect to plant design, construction, and commissioning needs.
- Manage the performance and development of assigned electrical engineering personnel relative to site and corporate objectives and provide focus on the attainment of high-quality and compliant engineering results.
- Oversight provided documentation, drawings, reports and detailed equipment specifications for responsible engineering discipline, including acceptance process and resolution of non-conformances.
- Ensure the quality of engineering and technical support services in conformance with established Programs, Policies, Processes, Regulations and appropriate contractual requirements.
- Maintain configuration management control of nuclear power plant design information for the assigned discipline. *(electrical discipline engineer/leader)*
- Ensure compliance with applicable codes, standards, licenses, permits, and permissions governing the design, engineering, construction and operation of nuclear power plant.
- Provide plant construction and commissioning support.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Electrical systems and equipment installations	6-7
Electrical and Electronic Circuits	5-6
Electrical Engineering	5-6
Electrical Safety	5-6
Cabling	5-6
Electrical Supply	5-6
Industrial Safety	4-5
Electric Power Generation(4)	4
Electric Power System Analysis and operation	4
Electric Power System Protection	4
Engineering Graphics and technical drawing	3-4
Power Plant Systems	3-4
Computer-aided engineering / Computers and Engineering Problem Solving	3
Control and Automation Systems	3
General Mechanical Engineering	3
General Nuclear Engineering	3
Technical Writing	3
Electrical instrumentation	3
High Voltage Engineering	3
Systems Design	2

SKILLS (Technical competence, abilities)	EQF level (1-8)
Inspection and testing of electrical equipment	6
Using and interpreting electrical schemes	5
Identification of safety requirements	5
Complying with statutory regulations and organisational QSE requirements	4-5
Ability to implement regulations and procedures	4-5
Producing Technical Information for Engineering Activities	4-5
Retrieving Electrical Engineering Drawings using Computer Aided Techniques	4-5
Preparing proposals for technical modifications	4
Using and interpreting engineering data and documentation	4
General management	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Dealing with Difficult Situations	5
Analytical thinking	5
Capacity to act upon problems	5
Conscientiousness	5
Team Working	4
Accountability	4
Corporate Culture	4
Planning and evaluation	4
Priority setting	4

NOTES
Electrical discipline engineer/leader. Similar function with reviewing /approval role function

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1.4.01	Job Title	Category
NPP – N Commissioning	**Electrical Commissioning Engineer** --	Professional
Commission the electrical systems of the NPP according to released and approved procedures and instructions.		Entry level qualification ISCED --

Roles / Functions

- Design Commissioning Procedures and Instructions based on observations during construction phase.
- Supervise and coordinate commissioning activities related to the electrical systems
- Perform first start-up of the temporary and final installed electrical systems
- Document all commissioning activities
- Mentor future maintenance and operational personnel of the systems

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Electric Power System Protection	7
Electrical hazards and Safety	5-6
Electrical and Electronic Circuits	5-6
General Electrical Engineering	5-6
Electric Power System Operation	5-6
Electric Power Supply	5-6
Electrical Equipment (Machines, Drives, Transformator, Switchgear)	5-6
Cabling	4-5
Electric Power Generation	4-5
Electrical fault diagnosis and rectification	4-5
Engineering Graphics and technical drawing	3-4
Computer-aided engineering / Computers and Engineering Problem Solving	3
Control and Automation Systems	3
Electrical installations	3
Electrical instrumentation	3
Electronics, Signals, and Measurement	3
Power Electronics	3
General Nuclear and Basic Engineering	3
Power Plant Systems	3
Technical writing	3
High voltage engineering	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Using and interpreting electrical schemes	6
Using engineering computer-aided tools	5
Use technical information and detailed electrical drawings	5
Checking and Calibrating electrical /electronic test equipment and Process Control Instrumentation	5

Specifying electrical Testing Instructions	5
Loading and Proving specific Computer Control Programs	5
Identifying and Rectifying faults in electrical equipment	5
Identification of safety requirements	5
Ability to implement regulations and procedures	4-5
Operating electric machines and installations	4
Preparing records andgraphs	3
Didactic skills	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Eye for detail / accuracy	5
Dealing with Difficult Situations	4
Effective Interactive Communication	4
Team Working	4
Accountability	4
Capacity to act upon problems	4
Corporate Culture	4

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B. BUHAI	2nd ECVET Workshop	
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1.4.02	Job Title	Category
NPP – N Commissioning	**Mechanical Commissioning Engineer** --	Professional
Commission mechanical components of the NPP according to released and approved procedures and instructions.		Entry level qualification ISCED --

Roles / Functions

- Design Commissioning Procedures and Instructions
- Supervise and coordinate commissioning activities related to the mechanical components
- Document commissioning take-over activities
- Mentor future maintenance and operational personnel of the mechanical components

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Hydraulic and pneumatic systems and components	5-6
Pipe systems, pumps and turbines; steam turbines; turbine technology	5-6
Dynamics and mechanical vibrations	5
General mathematics	5
Materials performance in extreme environments	5
Computer aided engineering	4
Engineering drawing and graphics	4
Heat and mass exchange in equipment units of NPPs	4
Materials for nuclear steam supply systems	4
Thermo-mechanical behaviour	4
Troubleshooting electromechanical systems	3-5
Computers and engineering problem solving	3
Flaw assessment and fracture mechanics	3
Fluid mechanics	3
Fundamentals of flow, heat and mass transfer	3
General Chemistry	3
General Physics	3
Measurement applications using radioisotopes and radiation	3
Measurement of operating parameters	3
Material science: Mechanical properties	3
Sensors, measurement and signal processing	3
Thermal hydraulics	3
Cabling	2-3
Electrical and electronic circuits	2-3
Electrical motors	2-3
General electrical engineering	2-3
Steam generation plant and ancillary systems	2-3
Computer literacy	
Control and automation systems	

Electrical safety	
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control	
Process system reliability and safety	
Technical writing	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Identification of safety nuclear and operational requirements	5-6
Read and interpret engineering drawings	4
Reading illustrated part catalogue	4
Use technical information to review detailed drawings	4
Using and interpreting engineering data and documentation	4
Using engineering representation computer-aided tools	4
Analysing and interpreting the results of radiographic tests	3
Carrying out radiographic testing	3
Carrying out visual inspection of welded fabrications	3
Checking and calibration mechanical inspection equipment	3
Coordinate the response to contingency	3
Creation and revision of components maintenance manuals	3
Dimensional measuring	3
General management: budget management, business improvement, financial management, human resources , QS&E, planning, monitoring and evaluation	3
Inspecting mechanical products, fabricated components and structures	3
Non destructive testing	3
Specifying non-destructive testing instructions	3
Inspection by magnetic particle testing	2
Inspection by penetrant flaw detection techniques	2
Read and interpret functional diagrams	2
Complying with statutory regulations and organisational QS&E requirements	
Preparing records, graphs and drawings	
Producing technical information for engineering activities	
Understanding complex regulations and procedures	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Accountability	
Analytical thinking	
Capacity to act upon problems	
Capacity to allocate tasks and organise work	
Conscientiousness	

Corporate culture	
Dealing with difficult situations	
Didactic skills	
Eye for detail / accuracy	
Planning and evaluation	
Priority setting	
Team working	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BUHAI	2nd ECVET Workshop	
24.03.2012	24.03.2012	

1.4.04	Job Title	Category
NPP – N Commissioning	**I&C Commissioning Engineer** --	Professional
Commission I&C Components and Systems of the NPP according to released and approved procedures and instructions.		Entry level qualification ISCED --

Roles / Functions

- Design Commissioning Procedures and Instructions
- Supervise and coordinate commissioning activities related to the I&C Systems and Components
- Document commissioning take-over activities
- Mentor future maintenance and operational personnel of the I&C Systems and Components
- Support other Commissioning Areas (Electrical, Mechanical and Plant Systems)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Digital electronics	6-7
Control and automation systems	6-7
Electronic digital signals and measurement	6
Sensors, measurement and signal processing	6
Analogue electronics. Electronic circuits	5
Computer control programs.	5
Electrical and electronic circuits	5
Nuclear instrumentation, applications and control. Measurement of operating parameters.	5
General Mathematics	5
Computer Science	4-5
Computer and network engineering	4
Cabling	4
NPP system dynamics and control	4
Computer literacy	4
Electronic analogue and digital engineering	3
Computer aided engineering	3
Computers and engineering problem solving	3
General engineering drawing and graphics	3
Process system reliability and safety	3
General nuclear engineering: Nuclear power plant, reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control	3
Regulation and licensing	3
Technical writing	3
Data reduction and error analysis	3
Measurement uncertainty	3
Electrical engineering – general.	2-3

Mechanical engineering - general	2
General Chemistry	2
General Physics	2
Electrical safety	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Rectifying faults in electronic equipment.	6
Checking and calibrating process control instrumentation.	5-6
Identification of safety nuclear and operational requirements.	5-6
Specifying non-destructive testing instructions. Planning and conducting electrical and electronic testing.	5
Loading and proving computer control programs.	5
Checking and calibrating electrical / electronic test equipment.	5
Electrical and electronic measurement	5
Using engineering representation computer aided tools.	4
Producing technical information for engineering activities.	4
Using and interpreting engineering data, drawings and documentation. Reading electronic schematics.	4
Understanding of complex regulations and procedures.	3
Producing off-line programs for PLC equipment	3
General management: budget management, business improvement, financial management, human resources , QS&E, planning, monitoring and evaluation	3
Using and interpreting electrical schemes.	2-3
Organising and managing engineering operations	2
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Didactic skills	3
Capacity to allocate tasks and organise work	
Dealing with difficult situations	
Team working	
Accountability	
Capacity to act upon problems	
Conscientiousness	
Corporate culture	
Planning and evaluation	
Priority setting	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BUHAI		
24.02.2012		

1.4.07	Job Title	Category
NPP – N Commissioning	**Licensing Manager** Permitting Manager	Professional
Managing all aspects of the licensing process and interfacing with the regulatory authorities		Entry level qualification ISCED 7

Roles / Functions

- Ensuring that licensing documents are in compliance with the regulations
- Interfacing with the regulatory authorities and stakeholders.
- Control the implementation of licensing requirements.
- Assist the departments for compliance with requirements from the regulators.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Environmental compliance	7-8
Understanding of complex regulations	7-8
Regulation and licensing / All legislation, policies and procedures in the nuclear field. Environmental regulations.	7-8
Nuclear power plant	5-7
Integrated management system	5-6
Project management: budget, human resources, scope, risk assessment	5-6
Requirements management system	5-6
Nuclear safety: risk assessment, radiation protection/health physics, radiological contamination, emergency preparedness	5-6
Security and safeguards	5-6
Communication techniques: Negotiation, presentations, writing	4-5
Finance and administration	4
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Compiling and analysing the licensing requirements	
Planning, scheduling, and ensuring the timely completion of the licensing process and the related documents	
Overseeing the preparation of the licensing documentation	
Argumenting safety in front of political instances, regulators, technical experts.	
Interfacing with regulatory authorities.	
Ability to understand, review and correct scientific/technical specs.	
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
2nd ECVET Workshop		
24.02.2012		

2.0.01	Job Title	Category
NPP – O --	**Plant Manager** --	Professional
Prepare strategic programs in the medium and long term and ensures implementation. Ultimate responsible of all the activities in the NPP.		Entry level qualification ISCED 7

Roles / Functions

- Coordination of the Heads of Departments and Services, including emergency sections.
- Chief of the emergency respond team and overall responsible for safety, including application of the IAEA standards and requirements of the national regulator
- Interface regulatory body and local authorities, social stakeholders, etc.
- Responsible for training and qualification of plant's personnel
- Ensure the safe and reliable operation of NPP

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Processes to manage the safe operation of the plant (such as corrective action program, continuous improvement, operating experience...)	7
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control, nuclear science.	6-7
Technical specifications and standards concerning the operation, safety management and emergency	6
General and project management: budget management, business improvement, financial management, HHRR, QSE, planning, monitoring and evaluation.	6
Nuclear safety culture principles	6
Operation procedures of the plant and all the site specific aspects	5
National and international regulations and licensing. Nuclear standards and codes	5
Radiation protection and occupational / industrial safety	5
Plant modifications, Testing and inspection	5
Self-assessment and Performance Improvement methods, Error Prevention Techniques and Human Performance Tools	5
Classification of components and systems and their main function	4
Safety assessment (probabilistic and deterministic approach).	4
Fuel cycle, Foreign material control, Quality control	4
General chemistry and physics, Material science	4
Communication techniques.	4
Administrative requirements	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Management of processes and actions for mitigating the consequences of events that might lead to a loss of control over the core of a nuclear reactor	7
Management of the energy production, planning shutdowns, start-ups and maintenance operations, with priority for safety and also considering time/costs aspects	7
Coordinating response to contingency and emergency.	7
Monitor and collaborate for a safe operation of the plant and for reducing the risk for the people and the environment	6

Monitoring all fuel-related processes	6
Monitoring the training plan and the professional growth of people, Managing personal developing and monitoring tasks.	6
Overseeing and applying complex regulations and procedures.	6
Identification of safety requirements.	6
Communicating effectively.	6
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	6
Monitor and maintain/improve the quality of the processes.	6
Control the exposure of people to radiation and the release of radioactive material to the environment	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Supervising and monitoring all the activities of the plant	6
Stress control	6
Communication abilities and perseverance	6
Team work, management of people, impact and influence	6
Coordinate and organize the activities in NPP	5
Problem solving, Make decision, to be objective in doing it, and to guide his/her own team	5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
F. PASQUALONI	F. PASQUALONI	
18.10.2012	26.10.2012	

2.1.02	Job Title	Category
NPP – O Nuc Oper & WM	**Licensing Officer** Permitting Officer	Professional
Responsible for nuclear licensing and nuclear regulatory affairs, including successful receipt and implementation of needed licenses and permits to construct and operate NPP		Entry level qualification ISCED 7

Roles / Functions

- Acquire, maintain and modify of the necessary licenses and approvals for construction and operation of PJE EJ1 nuclear power plant.
- Develop of the licensing and permitting organization for the nuclear power program, including hiring and training of the engineers and specialists in accordance with the program schedule.
- Ensure compliance with all applicable license conditions, standards, monitoring and reporting requirements during both the construction and operational phases of the program.
- Integrate NPP management, site characterization contractor, plant vendor and other subcontractors permitting and licensing activities to successfully develop applications required for licenses and permits
- Develop cooperative relationships with local permitting and licensing agencies to facilitate permitting and licensing process
- Establish and develop effective relationships with stakeholders both locally and internationally

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Environmental compliance	7
Understanding of complex regulations	7
Regulation and licensing / All legislation, policies and procedures in the nuclear field. Environmental regulations.	7
Nuclear power plant	5
Integrated management system	5
Project management: budget, human resources, scope, risk assessment, finance and administration	5
Requirements management system	5
Nuclear safety: risk assessment, radiation protection/health physics, radiological contamination, emergency preparedness	5
Communication techniques: Negotiation, presentations, writing	5

SKILLS (Technical competence, abilities)	EQF level (1-8)
Compiling and analysing the licensing requirements	6
Planning, scheduling, and ensuring the timely completion of the licensing process and the related documents	5
Overseeing the preparation of the licensing documentation	6
Argumenting safety in front of political instances, regulators, technical experts.	6
Ability to understand, review and correct scientific/technical specs.	5

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Conscientiousness	4
Decisiveness: capability to make judgment and decisions	4
Management of people	5
Capacity to mobilise people	5
Communication skills	5
Problem solving	4
Analytical and reasoning skills	4
Analyse and structure information	5
Impact and influence	5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
I. KULPA		
24.10.2012		

2.1.03	Job Title	Category
NPP – O Nuc Oper & WM	**Production Manager** --	Professional
The person responsible for managing the operation section, chemistry and radiochemistry section and operating experience department.		Entry level qualification ISCED 7

Roles / Functions

- Provide leadership and oversee the daily operating activities in accordance with applicable regulations, policies and procedures.
- Provide leadership and oversee the daily activities of the Production Department in accordance with applicable regulations, policies and procedures.
- Supervise the Training Programs for the Production Department.
- Budget control.
- Plan and control daily production activities according to plant expectations providing in-field oversight.
- Establish high levels of performance, monitoring performance, and reinforcing/correcting behaviour as necessary within Production department.
- Support Plant Manager to establish site standards and expectations with the work force by providing oversight, mentoring and coaching for organized work team.
- Responsible, in absence of the Plant Manager, for managing all plant activities, also in case of site emergency.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Safety culture.	6
Nuclear safety	6
Testing and inspection	6
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control, nuclear science.	5-6
Radiation safety and protection.	5-6
General and project management: budget management, business improvement, financial management, HHRR, QSE, planning, monitoring and evaluation.	5
Self-assessment and Performance Improvement methods.	5
Material science	5
Operating Experience.	4-5
Plant modifications.	4-5
Error Prevention Techniques and Human Performance Tools	4-5
Safety assessment (probabilistic and deterministic approach).	4
Communication techniques.	4
General chemistry and physics	4
Administrative requirements	3-4
Nuclear codes and standards.	3-4
Quality control.	3-4
Foreign material control.	3-4
Training and qualification of personnel, including Main Control Room Training Programs.	3
Fuel cycle.	3

National and international regulations and licensing.	3
Industrial safety-	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Overseeing and applying complex regulations and procedures.	6
Managing personal developing and monitoring tasks.	6
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	6
Identification of safety requirements.	5
Coordinating response to contingency and emergency.	5
Communicating effectively.	5
Monitor and maintain/improve the quality of the processes.	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Accountability.	6
Analytical and reasoning skills.	6
Analyse and structure information.	6
Planning and evaluation.	6
Management of people.	5
Problem solving.	5
Capability of getting things done (challenging).	4-5
Capability to make judgment and decisions.	4-5
Impact and influence.	4-5
Communication skills.	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
J. IGLESIAS/F. PASQUALONI		
24.10.2012		

2.1.04	Job Title	Category
NPP – O Nuc Oper & WM	**Training Officer** Methodological Expert	Professional
Responsible for performance of training need analysis; design the requested training components; evaluation of training effectiveness.		Entry level qualification ISCED 6

Roles / Functions

- Lead the process for identification of training needs for specified field of work.
- Develop specified training programs;
- Contribute to development of training materials
- Organize and oversee the conducting of training
- Evaluate the training performance and training effectiveness
- Provide recommendations regarding improvement of training quality
- Maintain interface between training department and serviced plant departments
- Support training manager and plant management in area of personnel training and qualification

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Pedagogic and psychology	6
Training methodologies and tools	6
Implementation of Systematic Approach to Training	6
Training facilities and training aids	5
General aspects of simulator training	4
Training of adults – specifics, applicable approaches	6
National and international standards and regulations	6
Human factor fundamentals	5
Technical fundamentals – nuclear, mechanical, electrical, I&C, chemistry	4
NPP systems and principal components	4
Planning, organizing and monitoring	5
Error prevention techniques and human performance tools	4
Nuclear safety	4
Radiation protection and ALARA principles	4
Occupational safety	4
Computer literacy	4
Quality assurance	3
Technical presentations	4

SKILLS (Technical competence, abilities)	EQF level (1-8)
Didactic skills	6
Draft working instructions related to training and qualification	5
Prepare reports, surveys, reviews and other supporting documents	6
Develop training programs for initial and continuous training	6
Operating computers using a variety of software	4
Plan and organize training activities including examinations	5

Understanding of complex regulations and procedures	5
Develop or support the development of training materials	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Team working	6
Safety culture	5
Effective interactive communication	6
Capacity to analyse and structure information	5
Reliability to meet deadlines	5
Planning and evaluation	5
Multitasking	4
Accountability	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
L. PIRONKOV		
24.10.2012		

2.1.05	Job Title	Category
NPP – O Nuc Oper & WM	**Quality Assurance Officer** --	Technician
Quality Assurance will manage the development, implementation, and maintenance of quality assurance systems and activities for NPP		Entry level qualification ISCED --

Roles / Functions

- Development, implementation and maintenance of the NPP Quality Assurance Program
- Ensure compliance with applicable nuclear regulatory quality assurance standards; quality assurance related contract requirements and verify internal compliance with NPP programs, policies and processes.
- Ensure subcontractor activities are conducted in accordance with approved quality plans.
- Establish and maintain quality assurance audit and surveillance program
- Oversee QC/NDE programs and certification of QC inspectors
- Recommending related training needs and assisting in training other employees on quality improvement.
- Management of the Corrective Action Program and analyzing data from the Corrective Action Program to determine trends and effectiveness of corrective actions.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
General management: budget management, business improvement, financial management, hhrr , QSE, planning, monitoring and evaluation, risk assessment	5-6
Occupational Safety	5-6
Quality Assurance	5-6
Production control	4-5
Project management	4-5
Auditing - mangement	4-5
Emergency Preparedness	4-5
Emergency Response Planning	4-5
Environmental compliance	4-5
Environmental Monitoring	4-5

SKILLS (Technical competence, abilities)	EQF level (1-8)
Planning, implementing and monitoring activities and projects	6
Using and interpreting data, documentation, diagrams and drawings	6
Coordinating response to contingency	6
Communicating effectively	6
Costs controlling	6
Manage, negotiate, direct, control subcontractors	6
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	6
Lead and enforce safety culture	6
Preparing records and graphs	5-6
Supplying information for management control	5-6
Review quality management processes	5

Complying with statutory regulations and organisational QSE requirements	5
Complying with statutory regulations and organisational safety requirements	5
Conduct assessment of risks in the workplace	5
Maintenance of a healthy, safe workplace	5
Monitor and maintain a safe working environment	5
Monitor and maintain the quality of processes	5
Quality & Process Management abilities	5
Overseeing and applying complex regulations and procedures	4-5
Identification of safety requirements	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Team Working	6
Accountability	6
Analytical thinking	6
Corporate Culture	6
Dealing with Difficult Situations	5
Capacity to act upon problems	5
Conscientiousness	5
Planning and evaluation	5
Priority setting	5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
I. KULPA		
12.10.2012		

2.1.06	Job Title	Category
NPP – O Nuc Oper & WM	**Engineering Manager** --	Professional
Managing and coordinating all technical support activities, related to safe, efficient and reliable operation of nuclear plant		Entry level qualification ISCED 7

Roles / Functions

- Manage and coordinate the work of subordinated staff
- Manage and coordinate the development of analysis for technical condition and effectiveness of technological process, installations, systems and components.
- Ensure collection, processing and analysis of information related to mode of operation of installations, systems and components, malfunctions, failures and events;
- Ensure strict adherence of the requirements regarding nuclear safety and radiation protection during implementation of technical support activities.
- Coordinate the development of the documents related to functional, post-maintenance or post-outage testing of systems and installations; start-up and shutdown of the plant;
- Assess and approve the technical specifications for plant modifications, designed to the improvement of nuclear safety and optimization of technological process.
- Monitor and control the implementation of plant modifications with compliance to approved specifications.
- Follow the license requirements and prescriptions of regulatory body related to nuclear safety and radiation protection
- Monitor and control the activities of plant designer and contractors, related to engineering, modification implementation and R&D activities related to optimization of plant operation.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Project management	7
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control	7
Nuclear safety, radiation protection and safety culture	7
Accident analysis	7
National and international regulations and licensing	7
General management: budget management, business improvement, financial management, human resources, QS&E, planning, monitoring and evaluation	6
Fuel cycle	6
Management: risk assessment	6
Lifetime analysis	5
Criticality safety	5
Process system reliability and safety	4
Human performance improvement and training methodology	4
Engineering economics	4
Computer and IT literacy	4
Communication techniques	4
Economic aspects of nuclear energy and industry knowledge	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Planning, implementing and monitoring engineering activities and projects	7
Producing Technical Information for Engineering Activities	7
Overseeing and applying complex regulations and procedures	7
Identification of safety requirements	7
Coordinating response to contingency	7
Using and interpreting data, documentation, diagrams and drawings	6
Manage, negotiate, direct, control subcontractors	6
Managing personal developing and monitoring performance	6
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	6
Lead and enforce safety culture	6
Preparing records and graphs	5
Supplying information for management control	5
Communicating effectively	5
Schedule working processes and prioritising tasks	5
Costs controlling	4
Monitor and maintain the quality of processes	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Decisiveness: capability to make judgment and decisions	6
Problem solving	6
Accountability	6
Analytical and reasoning skills	6
Analyse and structure information	6
Volition: capability of getting things done (challenging)	5
Conscientiousness	5
Management of people	5
Communication skills	5
Planning and evaluation	5
Multitasking	5
Discretion and Confidentiality	5
Capacity to mobilise people	4
Impact and influence	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
L. PIRONKOV	2nd ECVET Workshop	
24.03.2012	24.03.2012	

2.1.07	Job Title	Category
NPP – O Nuc Oper & WM	**Operations Manager** ---	Professional
Management all processes related to operation in liaison with other departments and communication with external stakeholders.		Entry level qualification ISCED 6

Roles / Functions

- Ensure all Shift Operations activities are performed in accordance with requirements of electrical grid, and European and national regulations
- Coordinates Operation Section activities according to the corporative strategy both with other sections and operating shifts.
- Ensure operation personnel are properly qualified.
- Ensure related activities like technical review of operation procedures, Technical Specification changes and fire protection operation are conducted in accordance with plant procedures.
- Controls and Coordinates operation related activities with other departments (maintenance, operational support…) to ensure safe and error free operation and to meet operational targets.
- Reviews and updates the Condition Reports and ensures the implementation of the Corrective Actions related to Operations.
- Provide leadership and strategic focus for staff.
- Establish performance expectations, monitors performance and reinforces/corrects behaviour as required to achieve desired performance.
- Manage the operating crews during normal, abnormal and emergency site operations.
- Introduces and implements best nuclear industry practices in operation processes.
- Enhance the operation practices in order minimize radioactive waste and inefficiencies.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Nuclear safety and safety culture	6
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control	6
Nuclear Science: Reactor Physics, thermal limits in nuclear fuels.	6
Nuclear unit systems operation: reactor start-up, normal, transient, emergency.	6
Occupational safety and personal protective equipment	6
Applied Techniques and Engineering: Electric Power Generation, Energy Conversion, Mechanical & Electrical Engineering.	5-6
Physics and Chemistry Theory: Thermodynamics, Fluid Mechanics,	5-6
Plant Chemistry	5-6
Sensors, Measurements, and Signal Processing; Instrumentation and control	5-6
Administrative policies and procedures	5
Error prevention techniques and human performance tools	5
International guidelines and regulations	5
Licensing and technical documentation of the NPP	5
Normative and legislations applicable to NPP emergencies	5
Radiation protection	4-5
Events analysis methodology	4
Human error prevention techniques	4
Mechanical Vibrations	4

Operating experience; analysis, evaluation and ways to implement the lessons learnt.	4
Quality assurance	4
Material Science	3
Mathematics - general	3
Fire protection	3
Reactor heat transfer, fluid flow and thermodynamics	2-3
Emergency preparedness	
Engineering drawings and diagrams	
Transient and accident reports understanding	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Schedule working processes and prioritise tasks - (time management)	6
Planning, implementing and monitoring operation activities: start-up, shut-down, refuelling, power control.	6
Overseeing and applying complex regulations and procedures	6
Using and interpreting data, documentation, diagrams and drawings	6
Coordinating response to contingency	6
Schedule working processes and prioritising tasks	6
Planning, implementing and monitoring engineering activities and projects	6
Producing Technical Information for Engineering Activities	6
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	6
Check facility pre-startup	6
Instrumentation and Control	6
Identification of safety requirements	5
Communicating effectively	5
Costs controlling	5
Managing personal developing and monitoring performance	5
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	5
Lead and enforce safety culture	5
Preparing records and graphs	4
Monitor and maintain the quality of processes	4
Supplying information for management control	3
Accident Analysis	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication - Ability to understand and be understood	
Conflict management / resolution	
Team Leadership	
Intellectual / Problem solving and judgement skills	

Decisiveness	
Supervision, monitoring and appraisal abilities	
Capacity to allocate tasks and organise work	
Problem solving	
Stress resistance	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
1st ECVET Workshop	C. CHENEL	
14.10.2011	21.06.2012	

2.2.01	Job Title	Category
NPP – N/O/D Op Cont Room	**Shift Engineer** Shift Supervisor Shift Manager	Professional
Responsible for the safe and error-free operation of the nuclear unit, including access to the power grid, and coordination of the activities of the shift personnel.		Entry level qualification ISCED 6

Roles / Functions

- Supervise control and monitoring of the nuclear unit according to the technical specifications: (radiation situation, chemical regime, limits and conditions)
- Assesses incidents, determining the degree of the event, manages operations in accordance with the emergency plan and comply with the reporting obligations.
- Coordinates/approves maintenance interventions.
- Directs shift personnel in emergency situations, in accordance with emergency operating procedures.
- Supervise the continuous update of operation records.
- Interfacing with other departments of the organization
- Assisting in the preparation of continuous training programmes for control room crew (SM)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Nuclear Science: Reactor Physics, Thermal limits in nuclear fuels, Nuclear Power Plant Systems. Reactor heat transfer and fluid flow.	6
Physics and Chemistry Theory: Thermodynamics, Fluid Mechanics,	5-6
Plant Chemistry	5-6
Applied Techniques and Engineering: Electric Power Generation, Energy Conversion, Mechanical & Electrical Engineering.	5-6
Sensors, Measurements, and Signal Processing; Instrumentation and control	5-6
Radiation protection	4-5
Human error prevention techniques	4
Mechanical Vibrations	4
Mathematics-general	3
Material Science	3
Thermodynamics	2-3
Fluid flow	2-3
Engineering drawings and diagrams	
Emergency preparedness	
Occupational safety and personal protective equipment	
Application and sharing of emergency situation experience	
Transient and accident reports understanding	

SKILLS (Technical competence, abilities)	EQF level (1-8)

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Supervision, monitoring and appraisal abilities	
Communication - Ability to understand and be understood	
Intellectual / Problem solving and judgement skills	
Decisiveness	
Capacity to allocate tasks and organise work	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
1st ECVET Workshop		
14.10.2011		

2.2.02	Job Title	Category
NPP – O Op Cont Room	**Reactor Manager** Head of Reactor Unit Senior Reactor Operator	Professional
Responsible for the production of electricity/heat and overall performance of the operating unit. Coordination of activities of primary and secondary circuits.		Entry level qualification ISCED 6

Roles / Functions

- Adheres to the prescribed mode of operation, safe and trouble free operation of the unit.
- Operates the unit security system, fire water, dosimetry system, and electronic fire alarm system.
- Adheres to nuclear, radiation and fire safety as well as limits and conditions for operation of the reactor unit.
- Organizes the activities of the control room operators and coordinates with the field operators.
- Supervise control and monitoring of the nuclear unit according to the technical specifications: (radiation situation, chemical regime, limits and conditions)
- Coordinates the preparation of the equipment for maintenance activities and for a start up of the equipment after maintenance
- Overall Monitoring equipments' parameters during operations and ensuring the response to system or unit abnormalities, diagnosing the cause, and recommending or taking corrective action and reporting incidents.
- Responsible for recording of operating registers.
- Supervise the continuous update of operation records.
- During the outage for refuelling, coordinates and monitors activities in the controlled area (*)
- Assesses incidents, determining the degree of the event, manages operations in accordance with the emergency plan and comply with the reporting obligations.
- Directs reactor operators in emergency situations, in accordance with emergency operating procedures.
- Interfacing with other departments of the organization
- Responsible for implementation of operational procedures such as those controlling start-up and shut-down activities.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Nuclear Science: Reactor Physics, Thermal limits in nuclear fuels, Nuclear Power Plant Systems. Reactor heat transfer and fluid flow.	6
Reactor heat transfer and fluid flow	6
Nuclear unit systems operation: reactor start-up, normal, transient, emergency.	6
Application and sharing of emergency situation experience	6
Occupational safety and personal protective equipment	6
Physics and Chemistry Theory: Thermodynamics, Fluid Mechanics,	5-6
Plant Chemistry	5-6
Applied Techniques and Engineering: Electric Power Generation, Energy Conversion, Mechanical & Electrical Engineering.	5-6
Sensors, Measurements, and Signal Processing; Instrumentation and control	5-6
Radiation protection	4-5
Human error prevention techniques	4
Mechanical Vibrations	4
Mathematics - general	3

Material Science	3
Fluid flow	2-3
Engineering drawings and diagrams	
SKILLS (Technical competence, abilities)	EQF level (1-8)
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Supervision, monitoring and appraisal abilities	
Communication - Ability to understand and be understood	
Intellectual / Problem solving and judgement skills	
Decisiveness	
Capacity to allocate tasks and organise work	
Problem solving	
Stress resistance	

NOTES
(*) CANDU reactors (continuous refueling)

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2.2.03	Job Title	Category
NPP – O Op Cont Room	**Control Room Operator** Reactor operator Operator in control room - CRO	Technician
Responsible for the operation of the nuclear unit in normal and emergency modes, in accordance with the plant operating license and technical specifications and under the supervision of the Shift Manager		Entry level qualification ISCED 5

Roles / Functions

- Adjust controls to position control rods and to regulate flux level, reactor period, coolant temperature, and rate of power flow, following standard procedures.
- Monitor and operate steam generator, turbines, wells, and auxiliary power plant equipment.
- Regulate the output of electrical generator, and monitor instruments to maintain voltage and regulate electricity flows from the nuclear unit, adapting to demand changes.
- Record operating data.
- Respond to system or unit abnormalities, diagnosing the cause, and recommending or taking corrective action and reporting incidents.
- Implement operational procedures such as those controlling start-up and shut-down activities.
- Dispatch orders and instructions to personnel to coordinate auxiliary equipment operation.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Nuclear Science: Reactor Physics, Thermal limits in nuclear fuels, Nuclear Power Plant Systems. Reactor heat transfer and fluid flow.	6
Nuclear unit systems operation: Reactor Start-up, normal, transient and emergency.	6
Physics and Chemistry Theory: Thermodynamics, Fluid Mechanics,	5-6
Plant Chemistry	5-6
Applied Techniques and Engineering: Electric Power Generation, Energy Conversion, Mechanical & Electrical Engineering.	5-6
Sensors, Measurements, and Signal Processing; Instrumentation and control	5-6
Radiation protection	4-5
Human error prevention techniques	4
Mechanical Vibrations	4
Mathematics-general	3
Material Science	3
Thermodynamics	2-3
Fluid flow	2-3
Engineering drawings and diagrams	
Transient and accident reports understanding	

SKILLS (Technical competence, abilities)	EQF level (1-8)

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

NOTES
This position has been split into Reactor Operator and Turbine Operator

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2.2.04	Job Title	Category
NPP – O Op Cont Room	**Reactor Operator** Reactor Unit Desk Operator	Technician
The reactor operator is responsible for manipulation of plant controls, monitoring of plant performance, directing hands-on operations of equipment and performing licensed activities during start-up, shutdown, power changes, emergency and accident conditions, and special configurations.		Entry level qualification ISCED 5

Roles / Functions

- Adjust controls to position control rods and to regulate flux level, reactor period, coolant temperature, and rate of power flow, following standard procedures.
- Monitor, analyse information derived from operating data
- Perform the record and reporting at the shift change-over.
- Respond to system or unit abnormalities, diagnosing the cause, and recommending or taking corrective action and reporting incidents.
- Implement operational procedures such as those controlling start-up and shut-down at normal, emergency, accident situations and transient conditions.
- Dispatch orders and instructions to personnel to coordinate auxiliary equipment operation.
- Controls all parameters of the primary circuit/reactor unit and, as required, auxiliary systems.
- Analyses the operation of equipment in the NPP and perform corrective actions for normal and abnormal conditions of equipment according with the plant procedures and the available information.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control, reactor dynamics and control	5
Nuclear unit systems operation: Reactor Start-up, normal, transient and emergency.	5
Nuclear instrumentation, applications and control. Measurement of operating parameters.	5
National regulations	5
Company regulations and procedures	5
General Physics	4
Nuclear Physics	4
Radiation protection	3
Nuclear Safety methods	3
Thermodynamics	3
Fluid dynamics	3
Electrical engineering	3
Mechanical engineering	3
Mathematics - general	3
Human error prevention techniques	3
Occupational-industrial safety	3
Engineering drawings and diagrams	3
Transient and accident reports	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Manipulate reactor controls in accordance with plant procedures.	6
Operate and monitor computer controlled equipment	6
Recognise abnormal situations.	5
Respond to abnormal functioning according to procedures and regulations	5
Apply complex regulations and procedures	5
Regulate working parameters using of the information of recorders and displays	5
Prepare technical reports	4
Record any failure of equipment, controls and instruments	4
Maintain a safe workspace	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Take responsibility for completing tasks and procedures	5
Critical analysis	5
Eye for detail/accuracy	5
Communication – capacity to communicate technical or specialised information	5
Team working	5
Safety Culture	5
Stress resistance	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
T. BERKVENS	3rd ECVET WS	
24.10.2012	24.10.2012	

2.2.05	Job Title	Category
NPP – O Op Cont Room	**Turbine Operator** --	Technician
This person is responsible for the manipulation of plant controls, monitoring plant performance and hands-on operations of equipment and systems related to the turbine in NPP, during normal, accidental and emergency situations as well as in special configurations.		Entry level qualification ISCED 5

Roles / Functions

- To monitor all the controls and data related to the operation of turbine, during the normal operation as well as during all the other situations occurring on the NPP according to plant procedures.
- Monitor, analyse information derived from operating data
- To manipulate all the plant controls related to the turbine in NPP.
- Perform the record and reporting at the shift change-over.
- Assure the correct implementation of operating procedures of turbine in NPP, under monitoring of the shift supervisor, during the normal operation
- Assure the correct implementation of operating procedures of turbine in NPP, under direct control of the shift supervisor, in case of emergency, in accidental conditions and in case of special configurations.
- Dispatch orders and instructions to personnel to coordinate auxiliary equipment operation.
- To monitor the plant performance for turbine related aspects.
- Analyses the operation of equipment in the NPP and perform corrective actions for normal and abnormal conditions of equipment according with the plant procedures and the available information.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Procedures related to the turbine during the normal operation of the plant.	5
Procedures related to the turbine in case of emergency, accident and in case of special configuration.	5
Plant systems and their functioning.	5
Safe conditions of the plant in and after every kind of transients.	5
Engineering drawings and diagrams.	4
National regulations, Company regulations and procedures, included reporting procedures.	4
Main phenomenon and related data (input and output), e.g. thermal hydraulics, ...	4
Interconnections and relationship between the conventional island and the nuclear island of the plant.	4
Emergency plan.	4
Radiation protection.	3
Nuclear Safety culture	3
Human error prevention techniques.	3
Occupational-industrial safety.	3
On-site relationships among different departments.	3
Safety assessment approach (deterministic and probabilistic), results and their impact on the conduct of the plant.	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Manipulate plant controls in accordance with plant procedures	6
Implementation of the procedure related to turbine during the normal operation as well as during the emergency, accidents or special	5

configuration of the plant	
Control of the data related to systems and components related to conventional island	5
Monitoring of the data related to systems and components related to nuclear island having a direct impact or a relationship with the conventional island	5
Recognise abnormal situations.	5
Predict the results of his/her actions on systems and components he/she drives and managing possible corrective actions required (in compliance with procedures)	4
Maintain a safe workspace	4
Regulate working parameters using of the information of recorders and displays	4
Prepare technical reports, including possible failure of equipment, controls and instruments	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Analyze the operation of equipment related to the conventional island of power plant and perform corrective actions for normal and abnormal conditions of equipment according with the plant procedures and the available information	5
Ability to have a complete understanding and awareness of the plant status and to recognize diverting situations	5
Team work abilities	5
Stress resistance	5
Apply theoretical knowledge to practical situations	4
Show a conservative approach	4
Take responsibility for completing tasks and procedures	4
Eye for detail/accuracy	4
Interface with other people and shifts to resolve issues, team working	3
Critical analysis	3
Communication – capacity to communicate technical or specialised information	3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
J. IGLESIAS/F. PASQUALONI		
24.10.2012		

2.3.01	Job Title	Category
NPP – O Oper in Field	**Field Operator Technician** Field Operator I Operator / Technician on the field	Technician
Responsible for ensuring error-free operation and maintenance of equipment and system within specified rules and guidelines		Entry level qualification ISCED 5

Roles / Functions

- Operation of equipment and systems to ensure safe and error-free operation, adhering to required parameters and limits and operational and safety regulations
- Ensuring failure/error free operation, responding to equipment abnormalities, diagnosing causes and recommending or taking corrective actions.
- In specific cases, actively participating in maintenance activities and in equipment revisions.
- Assisting in the preparation of occupational training programmes for field operators.
- Supervision of field operator workers.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Engineering – general: electrical engineering, electric power generation, energy conversion, mechanical engineering (can vary with specialisation)	4-6
Radiation protection	4-5
Human error prevention techniques	4
Nuclear power plant systems and main components	3-4
Nuclear safety-general	3-4
Nuclear science	2-3
Mathematics-general	2-3
Physic science	2-3
Thermodynamics	2-3
Fluid flow	2-3
Chemistry-general	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

NOTES

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1st ECVET Workshop		
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2.3.02	Job Title	Category
NPP – O Oper in Field	**Field Operator Worker** Operator on the Field Field Operator – Craft Field Operator II	Craft
Assistance to the main control room operator in the operation of equipment and systems and support to maintenance activities		Entry level qualification ISCED 3

Roles / Functions

- Operation of equipment and systems to ensure safe and error-free operation, adhering to required parameters and limits and operational and safety regulations
- Ensuring failure/error free operation, responding to equipment abnormalities, diagnosing causes and recommending or taking corrective actions.
- Mechanical and electrical preparation of equipment for major maintenance activities.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Radiation protection	4-5
Engineering – general: electrical engineering, electric power generation, energy conversion, mechanical engineering (can vary with specialisation)	3-4
Human error prevention techniques	3
Nuclear science	2-3
Nuclear power plant systems and main components	2-3
Nuclear safety-general	2-3
Mathematics-general	2-3
Physic science	2-3
Thermodynamics	2-3
Fluid flow	2-3
Chemistry-general	2

SKILLS (Technical competence, abilities)	EQF level (1-8)

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

NOTES

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2.4.01	Job Title	Category
NPP – O WM & RP	**WM & RP Manager** Waste Management & Radiation Protection Manager Radioprotection Specialist	Professional
Responsible for direct supervision of RP Officer to assure that the environmental health, radiation protection, and radioactive waste program is implemented in full compliance with EU, and national regulatory requirements.		Entry level qualification ISCED 3

Roles / Functions

- Assist the NPP / Unit Manager to build the nuclear safety (waste management and RP) policy and license requirements.
- Assures the safety of the staff at the workplace, involving job safety analysis, pre-job briefings, accident and injury reporting, and the conduct of safety meetings and human performance requirements.
- Guides the implementation of process improvements or corrective actions to resolve identified deficiencies in WM and RP activities.
- Collaborate with the managers of other sections to minimize radioactive waste and inefficiencies.
- Validate the limits of safe radiation exposure times for NPP personnel and prescribed safe levels of radiation as set forth by industry and governmental standards for NPP.
- Review and Approve the decontamination procedures (proposed by RPO), and recommends to the unit manager their inclusion in working plan of the unit.
- Monitors and records the retention process after accidental release of radioactive substances.
- Ensure the implementation of ALARA principles regarding the preparation and adequacy of personnel exposure, by means of monitoring records and carrying out contamination surveys.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Accident & Emergency issues, radiological incidents evaluation and control.	6
Safety Culture, ALARA principles	6
Decommissioning Principles	6
Radioactive waste management	6
Fuel and waste transport	6
Public / environmental and ethical considerations	6
Dosimetry: RP and external doses; protection against external exposures, protection against internal exposure; natural & artificial sources	6
Biology	6
Physical principles of detection – Applications of Ionizing Radiation (overview)	6
Dose of workers, Dose of population, Radioactivity, Interactions of radiation with matter, quantities and units	6
Dose Monitoring - regulatory Framework	6
Protective measurements, corrective actions	6
Biological Effects and risks associated to exposure to ionizing radiation	6
Fuel Cycle	
Mathematics - general	
Physics - general	
Atomic and nuclear physics	
Plant systems and components	
Calibration of sources and equipment	

Airborne radioactivity control	
Environmental monitoring	
Decontamination	
SKILLS (Technical competence, abilities)	EQF level (1-8)
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

NOTES

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14.10.2011		

2.4.02	Job Title	Category
NPP – O WM & RP	**Radiation Protection Officer** --	Technician
Responsible for monitoring and recording radiation level in all operation modes to determine potential contamination of humans, facilities, and environment.		Entry level qualification ISCED 4

Roles / Functions

- Coordinates the accession procedure for contractors and the training of nuclear plant personnel in radiation safety according to the rules of the nuclear unit.
- Check & approve the RP measures at any intervention into a potential contaminated area in both during production and outage.
- Determine the radiation types and levels present in work areas, on equipment, and in materials, and record any contamination.
- Determine radioactivity levels in air, liquids and gases and document any contamination.
- Depending on the testing results, recommend work stoppage in unsafe areas, post warning signs, and isolate contaminated areas.
- Register the status of areas being decontaminated, the rate of radiation exposure to personnel, and location and intensity of radioactivity in contaminated areas.
- Inform WM&RP manager (RPE) & Operation Manager when individual exposures or specific radiation levels approach maximum permissible limits.
- Provide the initial response to any abnormal events and to any alarms generated by their radiation monitoring equipment.
- Monitor the time/intensity of exposure of personnel working in higher risk sections and deciding if considered necessary periodic urinalyses of personnel and notify the WM&RP manager (RPE) when overexposure is detected.
- Prepare reports on contamination tests, material and equipment decontaminated, and defines the methods for the decontamination process.
- Calculate the limits of safe radiation exposure times and prescribed safe levels of radiation as set forth by industry and governmental standards for NPP.
- procedures and demonstrate the use of personal protection equipment (PPE)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Accident & Emergency issues, radiological incidents evaluation and control.	4-5
Biological Effects and risks associated to exposure to ionizing radiation	4-5
Dose of workers, Dose of population, Protective measurements, corrective actions Radioactivity, Interactions of radiation with matter, Quantities and Units	4-5
Dosimetry: RP and external doses; protection against external exposures, protection against internal exposure; natural & artificial sources	4-5
Dose Monitoring, Regulatory Framework	4-5
Airborne radioactivity control	3-4
Atomic and nuclear physics	3-4
Biology	3-4
Decommissioning Principles	3-4
Decontamination	3-4
Environmental monitoring	3-4
Fuel and waste transport	3-4
Fuel Cycle	3-4
Mathematics-general	3-4
Physical principles of detection – Applications of Ionizing Radiation (overview)	3-4

Physics-general	3-4
Plant systems and components	3-4
Public / Environmental-Ethical considerations	3-4
Radioactive waste management	3-4
Safety Culture, ALARA principles	3-4
Sample collection equipment, calibration of sources and equipment	3-4
SKILLS (Technical competence, abilities)	EQF level (1-8)
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
1st ECVET Workshop		
14.10.2011		

2.4.03	Job Title	Category
NPP – O WM & RP	**Radiation Protection Worker** --	Craft
Under guidance and supervision, responsible for radiation protection measures implementation in all operation modes and for keeping a safe environment in all work places.		Entry level qualification ISCED 3

Roles / Functions

- Implement the RP measures at work places and in potential contaminated area in both production and outage.
- Collect and analyze the readings of personal monitoring equipment (dosimeters) used by plant personnel and measure individual exposure to radiation.
- Implement the initial response to any abnormal events and to any alarms generated by radiation monitoring equipment.
- Decontamination of materials, premises and persons by the appropriate methods.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Safety Culture, Radioactive Waste Management principles	2-3
Decommissioning Principles	2-3
Public / Environmental-Ethical considerations	2-3
Fuel and waste transport	2-3
Accident & Emergency issues	2-3
Biology	2-3
Nuclear Physics: Interactions of radiation with matter	2-3
Physical principles of detection – Applications of Ionizing Radiation (overview)	2-3
Protective measurements and corrective actions	2-3
Dosimetry: quantities and units, RP external doses; protection against internal exposures and external exposure; natural & artificial sources; dose limits for professional exposure and for population.	2-3
Dose Monitoring-regulatory Framework	2-3
Fuel Cycle	2-3
Mathematics-general	2-3
Physics-general	2-3
Atomic and nuclear physics	2-3
Plant systems and components	2-3
Sample collection equipment	2-3
Airborne radioactivity control	2-3
Environmental monitoring	2-3
Decontamination	3-4

SKILLS (Technical competence, abilities)	EQF level (1-8)

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

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1st ECVET Workshop		
14.10.2011		

2.5.01	Job Title	Category
NPP – O Chemistry	**Chemistry Manager** Radiochemistry Manager	Professional
Is responsible for all aspects of the Chemistry program relating to analytical and radio analytical data. This encompasses coaching and mentoring, training, procedures, scheduling, budgeting, laboratory and in-line analysis, quality control, regulatory interface, and regulatory requirements. Maintain Chemistry analytical and radio analytical programs including all quality and regulatory aspects of the program.		Entry level qualification ISCED 6-7

Roles / Functions

- Ensure the achievement and sustainability of optimal operation conditions of chemistry installations, systems and equipment.
- Ensure safety and efficient production of chemical reagents, needed for technological process according to requirements of technical specification and operating procedures.
- Coordinate and supervise all type of tests, specified in plant technical specification and operating instructions.
- Supervise the delivery, storage and safe transportation of fresh and used chemical reagents;
- Ensure strict adherence of the requirements regarding nuclear safety and radiation protection during implementation of chemistry activities.
- Coordinate the development, update and correction of the documents related to functioning, maintenance and modification of chemistry equipment and applied chemistry conditions.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Chemical engineering	6
General chemistry	6
Nuclear safety, radiation protection and safety culture	6
Corrosion and Environmental Degradation of Materials	5
Performance improvement	5
Chemical engineering and Waste management	5
National and international regulations and licensing and standards (see other post)	5
Project management	4
Process system reliability and safety	4
Computer and IT literacy	4
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control	4
Radioisotopes Measurement Applications	4
Communication techniques	4
General management: budget management, business improvement, financial management, human resources , QSE, planning, monitoring and evaluation, risk assessment	3-4
Cost effective management related to the acquisition of chemicals	3
Training and qualification of personnel	3
Criticality safety	2-3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Overseeing and applying complex regulations and procedures	7

Identification of safety requirements	6
Coordinating response to contingency	6
Managing personnel development and monitoring performance	6
Analysing and interpreting the results of radioisotopes measurement	6
Lead and enforce safety culture	6
Communicating effectively	5
Schedule working processes and prioritising tasks	5
Using and interpreting data, documentation, diagrams and drawings	4-5
Supplying information for management control	4-5
Chemical Laboratory techniques	4
Producing Technical Information for Engineering Activities	4
Preparing records and graphs	4
Costs controlling	4
Reviewing and approving standard and experimental test procedures	4
Monitor and maintain the quality of processes	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Decisiveness: capability to make judgment and decisions	6
Management of people	5
Capacity to mobilise people	4
Communication skills	5
Problem solving	6
Accountability	6
Analytical and reasoning skills	6
Analyse and structure information	6
Impact and influence	4
Planning and evaluation	5
Multitasking	5
Discretion and Confidentiality	5
Team working / team building	5
Stress resistance	4

NOTES
To be checked against counterpart in NPP-D 3.9.08

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L. PIRONKOV	2nd ECVET Workshop	
24-03-2012	24-03-2012	

2.5.03	Job Title	Category
NPP – O Chemistry	**Chemistry Operator II** Chemistry Technician	Technician
Responsible for performing of analysis of water, gases and other chemical substances in primary side, secondary side and auxiliary systems with the purpose to maintain the prescribed chemistry regime.		Entry level qualification ISCED 4-5

Roles / Functions

- Take over and control the samples from technological systems.
- Perform pre-treatment of samples.
- Perform chemistry analysis using commonly accepted methods and techniques.
- Operate specific instruments and tools for chemistry analysis – pH meters, spectrometers, chromatograph, ion analyzer, titrators, etc.
- Perform verification and calibration of chemical laboratory equipment.
- Check and control the consumption of chemical reagents.
- Keep up to date the plant chemistry data bases.
- Perform inter-laboratory comparisons.
- Timely report the evaluation results to management at the responsible level and to other users of such results (operators, maintenance staff, the system engineering group, technical support organizations, etc.)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
General Chemistry	5
Radioisotopes Measurement Applications	4-5
Chemical Engineering and Waste Management	4
Corrosion and Environmental Degradation of Materials	4
Nuclear safety, radiation protection and safety culture	4
Hazardous waste treatment and disposal	3
Waste packaging and storage	3
Computer and IT literacy	3
Communication techniques	3
NPP systems and principal components	3
Radiation monitoring and dose assessment	3
Quality Assurance	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Laboratory Techniques	5
Checking and Calibrating Process Control Instrumentation	4
Maintenance of a healthy, safe workplace	4
Monitor radiation hazards	3
Management of hazardous chemical and radioactive waste	4
Monitor and maintain the quality of processes	3
Conduct assessment of risk in the workplace	3
Reinstating the work area on completion of activities	3
Operating computers using a variety of software	3
Prepare reports	3

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Accountability	4
Punctuality	4
Eye for detail/Accuracy	4
Effective interactive communication	3
Team Working	3
Motivation	3
Stress resistance	3
Self-development	3
Analytical thinking	2
Capacity to allocate tasks and organise work	2
Capacity to act upon problems	2
Multitasking	2

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
L. PIRONKOV		
25.10.12		

2.5.04	Job Title	Category
NPP – O Chemistry	**Chemistry Operator I** Chemistry Worker	Craft
Responsible for receiving, storing, transporting and using of chemical substances; delivery of samples for analysis of water, gases and other chemical substances in primary side, secondary side and auxiliary systems.		Entry level qualification ISCED 3

Roles / Functions

- Provide samples from technological systems.
- Follow the procedures for the storage, replacement, transfer and labelling of chemicals and other substances, including hazardous chemicals.
- Oversee the availability of the safety equipment (e.g. by monitoring of safety tanks, diesel oil and main pumps oil).
- Periodically monitor sumps and drains for radioactivity levels.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
General Chemistry	3
Corrosion and Environmental Degradation of Materials	3
Radioisotopes Measurement Applications	3
Chemical Engineering and Waste Management	3
Nuclear safety, radiation protection and safety culture	3
Occupational safety	3
Radiation monitoring and dose assessment	3
Hazardous waste treatment and disposal	2
Waste packaging and storage	2
Computer and IT literacy	2
NPP systems and principal components	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Laboratory Techniques	3
Checking and Calibrating Process Control Instrumentation	2
Maintenance of a healthy, safe workplace	3
Monitor radiation hazards	3
Management of hazardous chemical and radioactive waste	3
Reinstating the work area on completion of activities	3
Conduct assessment of risk in the workplace	2
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication – ability to understand and to be understood	3
Eye for detail/Accuracy	3
Team Working	2
Accountability	2
Punctuality	2
Capacity to act upon problems	2

Stress resistance	2

NOTES

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L. PIRONKOV		
25.10.2012		

2.6.01	Job Title	Category
NPP – O Safety & Security	**Safety and Security Manager** S(S)&E Manager	Professional
Managing the safety and security department according to the regulatory authorities and plant procedures.		Entry level qualification ISCED 5-6

Roles / Functions

- Ensure safety and security documents are in accordance with both national and international regulations.
- Manage the contracts with the security external company.
- Manage the relationships with the local, regional and national security forces.
- Develop the Safety and Security Department expectations in accordance with plant and company expectations.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Safety and Security Management.	6
Project management: Budget, HHRR, scope, risk assessment, personnel management.	5
National and international regulation / All legislation, policies and procedures in the nuclear field.	5
Security and safeguards.	5
Security systems, Applications and Concepts.	5
Fuel cycle.	4-5
Communication techniques: Negotiation, presentations, writing.	4
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control.	4
Risk Assessment.	4
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Specifying Safety and Security procedures content.	5-6
Coordinate the response to a contingency.	4-5
Monitor costs, accounts and claims.	4
Assessment and selection of applicants.	4
Scheduling activities.	4
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Discretion and Confidentiality.	7-8
Management of people.	5-6
Analytical and reasoning skills.	5-6
Volition: capability of getting things done (challenging).	5
Decisiveness: capability to make judgment and decisions.	5
Capacity to mobilise people.	5
Communication skills.	5
Problem solving.	5

Accountability.	5
Analyse and structure information.	5
Impact and influence.	5
Planning and evaluation.	5
Conscientiousness.	4-5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
J. IGLESIAS MORÁN		
12.10.12		

2.6.03	Job Title	Category
NPP – O Safety & Security	**Industrial Safety Supervisor** Occupational Safety Supervisor	Technician
Responsible for supervising the daily Safety & Security Department activities.		Entry level qualification ISCED 4-5

Roles / Functions

- Supervise and control the deficiencies identified during the daily activities by the security service systems.
- Reinforce the Safety and Security expectations.
- Perform and supervise the procedures modifications of the Safety and Security department.
- Supervise the operability of the security systems.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
National and international regulation / All legislation, policies and procedures in the nuclear field.	5
Security and safeguards.	5
Security systems, Applications and Concepts.	5
Planning, Organizing and Monitoring.	4-5
Communication techniques: Negotiation, presentations, writing.	4
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control.	4
Risk Assessment.	4
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Modifying procedures of the Safety and Security department.	5
Coordinate the response to a contingency.	3-4
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Discretion and Confidentiality.	7-8
Natural authority.	5-6
Team Working.	4-5
Self-Confidence.	4-5
Capacity to allocate tasks and organise work.	4
Communication - Ability to understand and be understood.	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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12.10.12		

2.6.04	Job Title	Category
NPP – O Safety & Security	**Fire Protection Worker** --	Craft
Responsible for availability and operability of serviced fire-protection systems and equipment.		Entry level qualification ISCED 3

Roles / Functions

- Carry out regular monitoring of serviced fire protection systems and equipment.
- Carry out fire protection related tasks, which are pre-defined in relevant procedures.
- Fulfill prescriptions and recommendation provided by fire protection supervisor.
- Provide line manager with information about identified deficiencies and failures of serviced fire protection equipment.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Fire protection and fire fighting fundamentals	3
Fire protection technology: Fire detection systems, Fire suppression systems; Fire water system; Portable fire extinguishers.	3
Fire protection regulations	3
Plant ventilation systems.	3
Fire grading and classification of plant areas	3
Fire origin and cause determination.	3
Emergency planning and preparedness	3
NPP systems and principal components	2
Hazardous materials awareness	2
Electrical safety	2
Occupational safety	2
Radiation protection	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Monitor and operate fire protection systems and equipment	3
Record any shortage or malfunction of fire protection equipment, controls and instruments	3
Maintaining, servicing and repairing of fire protection equipment	3
Implement assigned part of emergency plan	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication – ability to understand and to be understood	3
Reliability to meet deadlines	2
Safety culture	3
Stress resistance	3
Accountability	2
Punctuality	2

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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24.10.12		

2.6.05	Job Title	Category
NPP – O Safety & Security	**Fire Protection Supervisor** --	Technician
Responsible for managing of the daily plant activities regarding the Fire Protection Systems.		Entry level qualification ISCED 4-5

Roles / Functions

- Development, implementation and maintenance of the Fire Protection Handbook.
- Manage the contracts for all activities related to the Fire Protection Department.
- Draft and review Fire Protection procedures.
- Supervise the fire and sealed doors.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Fire protection technology: Fire suppression systems; Fire water system; Portable fire extinguishers.	5-6
Security and safeguards.	5
Hazardous materials awareness	5
Plant ventilation systems.	4-5
Prevention: classification of plant fire areas.	4-5
Fire origin and cause determination.	4-5
Communication techniques: Negotiation, presentations, writing.	4
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control.	4
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Monitor, control and report anomalies and failures.	5
Work in emergency scenes.	5
Transmit and receive messages regarding fire protection.	4-5
Organize and coordinate the fire protection team.	4-5
Force entry into a structure.	4
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Capacity to mobilise people.	5
Team Working.	4-5
Self-Confidence.	4-5
Capacity to allocate tasks and organise work.	4
Communication - Ability to understand and be understood.	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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12.10.12		

2.6.06	Job Title	Category
NPP – O Safety & Security	**Environmental Supervisor** --	Technician
Responsible for supervising the control and manage of the plant wastes (non contaminated materials).		Entry level qualification ISCED 4-5

Roles / Functions

- Preparation of environmental reports required by the plant.
- Monitoring compliance with legal requirements and applicable environmental requirements imposed in both national and international laws.
- Review documents and procedures for the Environmental Department.
- Monitor and deliver of environmental training courses for plant personnel.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Industrial wastes.	5-6
Plant environmental requirements and procedures.	5-6
Environmental compliance and monitoring.	5-6
Environmental plant indicators (monitoring).	5
Environmental degradation of materials	4-5
Environmental Transport of Radionuclide's.	4
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control.	4
SKILLS (Technical competence, abilities)	EQF level (1-8)
Monitor, control and report anomalies and failures.	5
Supervise environmental plant conditions.	4
Scheduling activities.	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capacity to allocate tasks and organise work.	4
Communication - Ability to understand and be understood.	4
Team Working.	4-5
Self-Confidence.	4-5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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12.10.12		

2.7.01	Job Title	Category
NPP – O Maintenance	**Electrical Technician** --	Technician
Responsible for: Operational capability and reliability of serviced electrical systems. Monitoring of overhaul life of electrical equipment and replacement of respective devices or components. Organization of assigned maintenance activities.		Entry level qualification ISCED 4-5

Roles / Functions

- Perform regular walk-downs and monitoring of serviced electrical systems and equipment.
- Inform electrical supervisor about identified deficiencies and malfunctions of serviced equipment.
- Assist electrical supervisor with organization, implementation and control of maintenance activities assigned to serviced electrical equipment.
- Issue orders for performance of maintenance tasks.
- Contribute to development of maintenance schedules, monitor its implementation and prepare respective reports.
- Contribute to development and update of maintenance related technical documentation.
- Contribute to development and implementation of technical modifications.
- Provide in-time notifications for review and calibration of measurement devices and instruments.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Electrical installations	4
Electrical instrumentation	4
Electrical equipment	4
Electrical maintenance, fault diagnosis and rectification	4
Electrical machines and drives	4
Using and interpreting electrical schemes	4
Cabling	4
Electrical and Electronic Circuits	4
Preventive and Corrective maintenance	3
Electrical generations	3
Electrical motors	3
Electrical Supply and Transportation	3
Electrical Safety	3
Radiation safety	3
Occupational Safety	3
Troubleshooting electromechanical systems	3
NPP systems and components	2
Planning capacity	2
Computer and IT literacy	2
Quality Assurance	1

SKILLS (Technical competence, abilities)	EQF level (1-8)
Electrical maintenance, inspection, testing and commissioning	4
Maintaining, servicing and repairing of electrical machines	4
Electrical and Electronic Measurement	3
Maintenance, service and repair of electrical systems	3
Modifying or rewiring electrical circuits	3
Carrying out preventive maintenance procedures	3
Preparing Reports	3
Monitor and maintain the quality of processes	3
Inspection and testing of electrical equipment	3
Electrical Maintenance Planning, Management and Evaluation	2
Conduct assessment of risk in the workplace	2
Maintenance of a healthy, safe workplace	2
Operating computers using a variety of software	1
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication skills	3
Team Working	3
Motivation	3
Accountability	3
Punctuality	3
Capacity to act upon problems	3
Multitasking	3
Stress resistance	2
Self-development	2

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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18.10.12		

2.7.02	Job Title	Category
NPP – O Maintenance	**Electronic-I&C Technician** --	Technician
Responsible for: Operational capability and reliability of serviced I&C systems and equipment. Monitoring of overhaul life of I&C equipment and replacement of respective devices or components. Corrective and preventive maintenance of I&C systems, devices and components.		Entry level qualification ISCED 4

Roles / Functions

- Perform regular walk-downs and monitoring of serviced I&C systems and equipment.
- Inform I&C supervisor about identified deficiencies and malfunctions of serviced equipment.
- Assist I&C supervisor with organization, implementation and control of maintenance activities prescribed to service I&C equipment.
- Issue orders for performance of maintenance tasks.
- Contribute to development of maintenance schedules, monitor its implementation and prepare respective reports.
- Contribute to development and update of maintenance related technical documentation.
- Contribute to development and implementation of technical modifications.
- Provide in-time notifications for review and calibration of measurement devices and instruments.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Analogue electronics	4
Digital electronics	4
Electronic Digital Signal Systems	4
Power Electronics	4
Sensors, Measurements and Signal Processing	4
Electronic Circuits	4
Preventive and Corrective maintenance	3
Control and Automation Systems	3
Cabling	3
Equipment and techniques of nuclear measurement	3
Instrumentation and control	3
Radiation Detection and Instrumentation	3
Electrical Safety	3
Radiation Safety	3
Occupational safety	3
Electrical instrumentation	2
NPP systems and components	2
Planning capacity	2
Computer and IT literacy	2
Quality Assurance	1

SKILLS (Technical competence, abilities)	EQF level (1-8)
Instrument & Control Maintenance	4
Read and interpret Electronic Circuit Schematics	4
Inspecting and Testing Electronic Products	4
Rectifying faults in electronic equipment	4
Checking and Calibrating Process Control Instrumentation	4
Electrical and Electronic Measurement	3
Monitor and maintain the quality of processes	3
Carrying out preventive maintenance procedures	3
Preparing Reports	3
Maintenance of a healthy, safe workplace	3
Conduct assessment of risk in the workplace	2
Operating computers using a variety of software	1
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication Skills	3
Team Working	3
Motivation	3
Accountability	3
Punctuality	3
Capacity to act upon problems	3
Multitasking	3
Stress resistance	2
Self-development	2

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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18.10.12		

2.7.03	Job Title	Category
NPP – O Maintenance	**Mechanical Maintenance Technician** --	Technician
The individual responsible for supervision of mechanical maintenance daily activities.		Entry level qualification: ISCED 4-5

Roles / Functions

- Supervise and coordinate daily mechanical maintenance work on plant equipment and facilities consistent with standardized plant fleet practices, policies and procedures.
- Assign tasks and manage personnel to ensure due dates and completions standards are met.
- Supervise and direct craft and contractor personnel in the conduct of maintenance.
- Promptly investigate and settle grievances.
- Ensure personnel are properly trained and qualified to perform assigned activities.
- Perform duties required to support the Emergency Plan.
- Conduct Condition Report generation, investigation and processing.
- Enforce established site standards and expectations with the work force by providing in-field oversight, mentoring and coaching for assigned work crews.
- Provide on-line and pre-outage work order reviews, walk downs and validation for correctness of scope, parts, clearances and work package preparation.
- Interface with other groups to resolve issues.
- Schedule implementation during on-line and outage periods.
- Show conservative approach to plant operations.
- Perform duties required to support the Emergency Plan.
- Conduct Condition Report generation, investigation and processing.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Mechanical equipment maintenance, inspection, testing and commissioning	4
Maintaining, servicing and repairing of mechanical equipment /components	4
Mechanical Engineering	4
Nuclear Science, Nuclear Power Plant Systems and Principal Components, Basic Nuclear Safety	3
Equipment Management	3
Material Science	3
Physical Metallurgy	3
Using and interpreting Technical Writing	3
Fluid Mechanics	3
Thermodynamics	3
Mechanic of Vibrations	3
Thermal Limits in Nuclear Fuels	3
NPP systems and components	2
Computer and IT literacy	2
Quality Assurance	1

SKILLS (Technical competence, abilities)	EQF level (1-8)
Mechanical equipment maintenance, inspection, testing and commissioning	4
Maintaining, servicing and repairing of mechanical equipment /components	4

Carrying out preventive maintenance procedures	3
Preparing Reports	3
Monitor and maintain the quality of processes	3
Conduct assessment of risk in the workplace	2
Maintenance of a healthy, safe workplace	2
Operating computers using a variety of software	1
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication skills	3
Team Working	3
Motivation	3
Accountability	3
Punctuality	3
Capacity to act upon problems	3
Multitasking	3
Stress resistance	2
Self-development	2

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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23.10.12		

2.7.04	Job Title	Category
NPP – O Maintenance	**Electrical Worker** --	Craft
Main assigned duties are: To carry out outage, medium-term, current or emergency maintenance and to service specified electrical equipment independently or under supervision. To accomplish pre-defined tasks in field of preparation and implementation of maintenance related activities.		Entry level qualification: ISCED 3-4

Roles / Functions

- Perform regular observation of working conditions of serviced electrical equipment.
- Follow existing procedures regarding treatment of malfunctioning equipment – take over, repairing, testing, commissioning, hand over.
- Collect and keep up-to date prescribed information on status and conditions of serviced equipment.
- Provide line management with information about identified deficiencies and failures of assigned electrical equipment.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Electrical instrumentation	3
Electrical Equipment	3
Electrical maintenance, fault diagnosis and rectification	3
Using and interpreting electrical schemes	3
Electrical safety	3
Occupational safety	3
Electrical installations	2
Electrical machines, repair and rewind	2
Troubleshooting of electromechanical systems	2
Cabling	2
NPP Systems and components	2
Radiation safety	2

SKILLS (Technical competence, abilities)	EQF level (1-8)
Inspection and testing of electrical equipment	3
Maintaining, servicing and repairing of electrical machines	3
Safely dismantle, remove and dispose of plant and equipment	3
Reinstating the work area on completion of activities	3
Electrical and Electronic Measurement	2
Maintenance, service and repair of electrical systems	2
Modifying or rewiring electrical circuits	2
Conduct assessment of risk in the workplace	2

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Team Working	3
Motivation	3
Accountability	3

Punctuality	3
Stress resistance	3
Communication – Ability to understand and to be understood	2
Capacity to act upon problems	2

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
L. PIRONKOV		
18.10.2012		

2.7.05	Job Title	Category
NPP – O Maintenance	**Electronic-I&C Worker** --	Craft
Responsible for: Performing outage, medium-term, current or emergency maintenance and to service specified I&C equipment independently or under supervision. Performing pre-defined tasks in field of preparation and implementation of maintenance related activities.		Entry level qualification: ISCED 3-4

Roles / Functions

- Perform regular observation of working conditions of serviced I&C equipment and supporting measurement devices and instruments.
- Collect and keep up-to date prescribed information on status and conditions of serviced I&C equipment.
- Provide line management with information about identified deficiencies and failures of assigned I&C equipment.
- Follow existing procedures regarding treatment of malfunctioning equipment – take over, repairing, testing, commissioning, hand over.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Digital electronics	3
Electronic Digital Signal Systems	3
Instrumentation and control	3
Electrical Safety	3
Occupational safety	3
Analogue electronics	2
Sensors, Measurements and Signal Processing	2
Electronic Circuits	2
Cabling	2
Equipment and techniques of nuclear measurement	2
Radiation Detection and Instrumentation	2
Radiation Safety	2
Electrical instrumentation	2
Computer and IT literacy	2
Power Electronics	1
NPP systems and components	1

SKILLS (Technical competence, abilities)	EQF level (1-8)
Instrument & Control Maintenance	3
Inspecting and Testing Electronic Products	3
Rectifying faults in electronic equipment	3
Reinstating the work area on completion of activities	3
Read and interpret Electronic Circuit Schematics	2
Checking and Calibrating Process Control Instrumentation	2
Electrical and Electronic Measurement	2
Conduct assessment of risk in the workplace	1

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Team Working	3
Motivation	3
Communication – Ability to understand and to be understood	2
Accountability	2
Punctuality	2
Capacity to act upon problems	2
Stress resistance	2

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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18.10.2012		

2.7.06	Job Title	Category
NPP – O Maintenance	**Mechanical Worker** --	Craft
Responsible for performing mechanical maintenance activities		Entry level qualification ISCED 3

Roles / Functions

- Check the limits of disclaimers.
- Execute work with the necessary means to ensure minimum radiation exposure and contamination.
- Perform work in compliance with the regulations to avoid accidents and human error.
- Comply with the procedures applicable in each case, indicating the possible deviations from their supervisors, and suggesting improvements to them.
- Execute the tasks in the workshop or field in accordance with existing procedures.
- Issue reports to their superiors of deficiencies in the implementation of its work.
- Show conservative approach to plant operations.
- Interface with other groups to resolve issues.
- Perform duties required to support the emergency plan.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Pipe systems, pumps and turbines	4
Pneumatic installations	4
Pneumatic Systems and Components	4
Metal adhesive procedures	4
Metal surface treatment	4
Radiation effects on materials / radiation damage	4
General Mechanical Engineering	3
Electrical Safety	3
Mechanical Maintenance Engineering	3
Technical Writing	3
Hydraulic installation	3
Steam turbines	3
Mechanical Vibrations	3
Mechanics of Materials	3
Thermo-Mechanical Behaviour	3
Nuclear materials-general	3
Technical and Engineering drawing - general	2
General Nuclear Engineering	2
General Mathematics	2
General Chemistry	2
General Physics	2
Reactor heat sources	2
Steam supply systems	2
Materials for nuclear steam supply systems	2
Power Generation	2

Corrosion and Environmental Degradation of Materials	2
General Materials Science	2
Materials Performance in Extreme Environments	2
Boiling heat transfer	2
Fundamentals of Flow, Heat and Mass Transfer	2
Thermal Hydraulics	2
Thermodynamics	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Complying with statutory regulations and organisational QSE requirements	3-4
Identification of safety (nuclear and operational) requirements	3-4
Mechanical Maintenance (Fitting, Welding, Pipefitting)	3-4
Inspection and testing of mechanical equipment	3
Maintenance, service and repair of mechanical systems	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Dealing with Difficult Situations	3
Accountability	3
Capacity to act upon problems	3
Conscientiousness	3
Corporate Culture	3
Team Working	2

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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12.10.2012		

2.7.07	Job Title	Category
NPP – O Maintenance	**Electrical Supervisor** --	Technician / Professional
Responsible for: Overall management of maintenance activities related to electrical equipment of assigned plant structure. Implementation of approved methods, tools, procedures and practices for maintaining adequate technical conditions, high reliability and safe operation of electrical equipment. Updating of existing or developing new solutions for ensuring high quality and efficiency of maintenance activities.		Entry level qualification ISCED 6

Roles / Functions

- Monitor and control the technical condition of electrical systems and equipment which are under his supervision.
- Develop plans for maintenance activities during scheduled outages and current and medium-term maintenance operations.
- Organize, manage, coordinate and supervise the overall maintenance process assigned to job position duties.
- Supervise the implementation of outage, intermediate, current and emergency maintenance.
- Monitor and control the quality of performance of contracted maintenance tasks and jobs.
- Develop and perform acceptance tests and procedures for contracted maintenance jobs including contracted activities.
- Monitor the life-time resource of serviced equipment, the availability of spare parts and consumables and provide any necessary deliverables and logistic items.
- Control strict adherence to maintenance regulations and technological procedures.
- Provide recommendations or suggestions for design changes or technical modifications.
- Provide training, examination and control the qualification of subordinate personnel.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Preventive and Corrective Maintenance	6
General Electrical Engineering	6
Electrical installations	6
Electrical equipment	6
Electrical instrumentation	6
Electrical maintenance, fault diagnosis and rectification	6
Electrical Safety	6
Planning, Organizing and Monitoring	6
Electrical machines and drives	5
Electrical motors	5
Using and interpreting electrical schemes	5
Troubleshooting Electromechanical Systems	5
Cabling	5
Planning capacity	5
Radiation Safety	5
Occupational safety	5
Electrical Supply and Transportation	4
Electrical generations	4
NPP systems and components	4

Risk Assessment	4
High Voltage Engineering	3
National and international regulations	3
Computer and IT literacy	3
Project management	2
Quality Assurance	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Organize and carry out the maintenance of equipment	6
Creation/revision of Component Maintenance Manuals	6
Electrical maintenance engineering	6
Electrical Maintenance Planning, Management and Evaluation	6
Electrical maintenance, inspection, testing and commissioning	6
Maintaining, servicing and repairing of electrical machines	6
Inspection and testing of electrical equipment	6
Carrying out preventive maintenance procedures	5
Electrical machines, inspection, testing and commissioning	5
Installation, testing and commissioning of electrical systems and equipment	5
Electrical and Electronic Measurement	5
Preparing Reports	5
Monitor people during radiation–related work activities	5
Monitor radiation conditions during work activities	5
Maintenance of a healthy, safe workplace	5
Maintenance planning, Management and Evaluation	4
Monitor and maintain the quality of processes	4
Manage, negotiate, direct, control subcontractors	4
Conduct assessment of risk in the workplace	3
Operating computers using a variety of software	3
Didactic skills	2
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Supervision, monitoring and appraisal abilities	6
Problem solving	6
Capacity to allocate tasks and organise work	6
Effective Interactive Communication	5
Team Working	5
Team Building	5
Accountability	5
Priority setting	5

Conflict Resolution	5
Planning and evaluation	5
Corporative culture	4
Multitasking	4
Analytical thinking	4
Motivation	4
Stress resistance	4
Creative Thinking	4
Initiative	4
Self-development	4
Management of people	3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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18.10.2012		

2.7.08	Job Title	Category
NPP – O Maintenance	**Electronic-I&C supervisor** --	Technician / Professional

Responsible for:	Entry level qualification
Overall management of maintenance activities related to electronic/I&C equipment of assigned plant structure. Implementation of approved methods, tools, procedures and practices for maintaining adequate technical conditions, high reliability and safe operation of electronic/I&C equipment. Updating of existing or developing new solutions for ensuring high quality and efficiency of maintenance activities.	ISCED 6

Roles / Functions

- Monitor and control the technical condition of electronic/I&C systems and equipment which are under his supervision.
- Develop plans for maintenance activities during scheduled outages and current and intermediate maintenance operations.
- Organize, manage, coordinate and supervise the overall maintenance process assigned to job position duties.
- Supervise the implementation of outage, current and emergency maintenance.
- Monitor and control the quality of performance of contracted maintenance tasks and jobs.
- Develop and perform acceptance tests and procedures for maintenance jobs, including contracted activities.
- Monitor the life-time resource of serviced equipment, the availability of spare parts and consumables and provide any necessary deliverables and logistic items.
- Control strict adherence to maintenance regulations and technological procedures.
- Provide recommendations or suggestions for design changes or technical modifications.
- Provide training, examination and control the qualification of subordinate personnel.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Preventive and Corrective Maintenance	6
Digital electronics	6
Electronic Digital Signal Systems	6
Electronics, Signals, and measurement	6
Electronic Circuits	6
Sensors, Measurements and Signal Processing	6
Planning, organizing and Monitoring	6
Control and Automation Systems	5
Analogue electronics	5
Electronic Analogue and Digital Engineering	5
Electrical Safety	5
Occupational Safety	5
Planning capacity	5
General Electrical Engineering	4
Power Electronics	4
Radiation Safety	4
Risk Assessment	4
Electrical installations	3
Equipment and techniques of nuclear measurement	3

NPP systems and components	3
National and international regulations	3
Computer and IT literacy	3
Quality Assurance	2
Project Management	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Maintenance, service and repair of electronic devices	6
Organize and carry out the maintenance of equipment	6
Creation/revision of Component Maintenance Manuals	6
Electrical and Electronic Measurement	6
Read and interpret Electronic Circuit Schematics	6
Inspecting and Testing Electronic Products	6
Rectifying faults in electronic equipment	6
Carrying out preventive maintenance procedures	5
Checking & Calibrating Electrical / Electronic Test Equipment	5
Checking and Calibrating Process Control Instrumentation	5
Monitor people during radiation–related work activities	5
Monitor radiation conditions during work activities	5
Preparing Reports	5
Maintenance of a healthy, safe workplace	5
Maintenance planning, Management and Evaluation	4
Monitor and maintain the quality of processes	4
Manage, negotiate, direct, control subcontractors	4
Operating computers using a variety of software	3
Conduct assessment of risk in the workplace	3
Didactic skills	2
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Supervision, monitoring and appraisal abilities	6
Problem solving	6
Capacity to allocate tasks and organise work	6
Effective Interactive Communication	5
Team Working	5
Team Building	5
Accountability	5
Conflict Resolution	5
Planning and evaluation	5
Corporative culture	4
Multitasking	4

Analytical thinking	4
Motivation	4
Stress resistance	4
Creative Thinking	4
Initiative	4
Self-development	4
Management of people	3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
L. PIRONKOV		
18.10.2012		

2.7.10	Job Title	Category
NPP – O Maintenance	**Process Equipment Technician** --	Technician
Responsible for the maintenance and implementation of repairs or modifications to equipment such as pressure boundary equipment in a nuclear power plant. Examples of such equipment and systems include process valves of all major types, pressure vessels and heat exchangers, rotating machinery, filters and strainers, piping and fittings and miscellaneous equipment.		Entry level qualification ISCED 4-5

Roles / Functions

- Perform critical or major equipment selection and sizing.
- Provide hands on contribution for a variety of equipment including their testing, maintenance, repair, and operation. This maybe plant equipment or tooling for the repair or maintenance of plant equipment.
- Contribute to preparing equipment-related documentation. This may include equipment assessment documents, performance analyses reports, equipment quotation requests, technical specifications and component spec sheets, bid evaluations and making technical recommendations to purchase. When necessary, certifying the equipment Design Specifications.
- Perform equipment-related tasks as requested by process system section heads and make recommendations, taking into consideration the feedback from the existing nuclear plants and cost targets.
- Interface with and utilize other discipline groups (such as process design & piping, metallurgy, electrical, C&I, civil) as needed to ensure the successful execution of the assigned work.
- Support the engineering interface with suppliers and station staff to resolve equipment problems that may arise during design, manufacturing, testing, installation, operation, repair and maintenance. Contribute to the preparation of concise engineering reports.
- Assist with the preparation of work plans and deliverables and ensure adequacy of scopes, budgets and schedules.
- Ensure the work performed meets the quality requirements in accordance with Company and Business Unit QA programs and manuals.
- Perform site visits and inspections as and if required in support of the engineering of design modifications or the performance of inspection, repair or maintenance activities.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Mechanical equipment maintenance, inspection, testing and commissioning	4
Maintaining, servicing and repairing of mechanical equipment /components	4
Mechanical Engineering	4
Electricity	3
Nuclear Science, Nuclear Power Plant Systems and Principal Components, Basic Nuclear Safety	3
Equipment Management	3
Material Science	3
Physical Metallurgy	3
Using and interpreting Technical Writing	3
Fluid Mechanics	3
Thermodynamics	3
Mechanic of Vibrations	3
Design Standards and regulatory requirements	3
Thermal Limits in Nuclear Fuels	3
NPP systems and components	2

Quality Assurance	1
SKILLS (Technical competence, abilities)	EQF level (1-8)
Carrying out preventive maintenance procedures	3
Preparing Reports	3
Monitor and maintain the quality of processes	3
Conduct assessment of risk in the workplace	2
Maintenance of a healthy, safe workplace	2
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication skills	3
Team Working	3
Accountability	3
Punctuality	3
Capacity to act upon problems	3
Multitasking	3
Stress resistance	2
Self-development	2

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
I. KULPA		
23.10.2012		

2.7.11	Job Title	Category
NPP – O Maintenance	**Welder** --	Craft
Execution of welding jobs required by the maintenance engineering crew according to the given technical specifications and safety standards.		Entry level qualification ISCED 3

Roles / Functions

- Preparation and reinstatement of the workplace
- Realisation of welding tasks
- Verification of compliance of the joints with technical standards and specifications.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Welding symbols, abbreviations and joint designs	5
Visual inspection - joints	5
Welding methods: (to be defined) (**)	5
Safety procedures applicable to workshop and field technical interventions: safe use of mechanical and electrical tools and equipment.	4
Metallurgy and Corrosion and Environmental Degradation of Materials, Heat embritlement in metallic materials, welding properties	4
Technical drawing and schematics – pipes, hydraulic, pneumatic systems	3
Fire protection: use of extinguishers, storage of flammables	3
Mathematics: whole numbers, fractions, decimals, geometry; unit conversion; calculations of length, area, volume. (*)	3
Safety and environmental regulations and practices	3
Radiation protection and radiation hazards and sources	3
Non destructive testing	2
Radiation effects on materials / radiation damage	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Interpret and apply relevant technical documentation: procedures, written instructions and design drawings	4
Select appropriate hand or power tools for a specific job	3
Draw pictorial and orthographic sketches	3
Perform shear, bend, slot and punch operations on metal pieces	3
Report safety hazards and apply corrective measures	3
Perform visual inspection on joints and metallic components	3
Recognize and report equipment malfunction	2
Use of relevant individual protection equipment	2
Produce brief technical reports on tasks performed, fill in check lists	2
Weld - Flux Cored Arc Welding (FCAW) – when applicable	
Weld - Gas Tungsten Arc Welding (GTAW) – when applicable	
Weld - Gas Metal Arc Welding (GMAW) – when applicable	
Weld - Shielded Metal Arc Welding (SMAW) – when applicable	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)

Conscientiousness	4
Eye for detail / accuracy	4
Numeracy	4
Stress resistance	4
Endurance for hard workplace conditions	4
Team working	3
Autonomy	3

NOTES
Profile belonging primarily to NEW BUILD, present in OPERATION only in certain organisations and mostly as subcontracted staff. Proposal to be moved to NB. (*) Under discussion the convenience of including knowledge included in general education/entry qualification (**) The content of this item may vary depending on specialisation.

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
C. CHENEL	3rd ECVET WS	
24.10.2012	24.10.2012	

2.7.13	Job Title	Category
NPP – O Maintenance	**Maintenance Manager** --	Professional
The individual responsible for managing the maintenance program in order to keep plant systems and equipment in a high state of readiness.		Entry level qualification ISCED 7

Roles / Functions

- Strategic planning, long range plan for equipment reliability, ensuring adequate staffing and setting yearly priorities for the Maintenance department
- Evaluate the maintenance processes and implement standardized changes to optimize maintenance costs, work quality and availability
- Provide leadership and oversee daily maintenance activities to ensure work is performed to appropriate standards using standardized plant practices, policies and procedures
- Establish high levels of performance, monitoring performance, and reinforcing/correcting behaviour as necessary within Maintenance department.
- Assign tasks and manage maintenance personnel to ensure that the schedules and standards are met.
- Ensure maintenance activities are completed in accordance with standardized plant practices, policies and procedures.
- Enforce established site standards and expectations with the work force by providing in-field oversight, mentoring and coaching for assigned work crews.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Project management	7
Preventive and Corrective Maintenance (*)	7
Equipment Reliability	6
Safety culture	6
Nuclear safety	6
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control, nuclear science,	5-6
Radiation safety	5-6
General management: budget management, business improvement, financial management, hhrr , QSE, planning, monitoring and evaluation	5
Performance improvement	5
Material science	5
Implementation of lessons learned from Operating Experience	4-5
Self-assessment	4-5
Plant modifications	4-5
Error Prevention Techniques and Human Performance Tools	4-5
Testing and inspection	4-5
Management: risk assessment	4
Communication techniques	4
General chemistry and physics	4
Administrative requirements	3-4
Quality control	3-4
Foreign material control	3-4

Training and qualification of personnel	3
Computer and IT literacy	3
Fuel cycle	3
National and international regulations, licensing and standards	3
Industrial safety	3
Document control and storage	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Identification of safety requirements	6
Coordinating response to contingency	6
Managing personnel development and monitoring performance	6
Schedule working processes and prioritising tasks	6
Lead and enforce safety culture	6
Monitor and maintain the quality of processes	6
Planning, implementing and monitoring activities and projects	5
Overseeing and applying complex regulations and procedures	5
Communicating effectively	5
Costs controlling	5
Manage, negotiate, direct, control subcontractors	5
Promoting and ensuring compliance with statutory regulations and organizational safety requirements.	5
Using and interpreting data, documentation, diagrams and drawings	4-5
Supplying information for management control	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Decisiveness: capability to make judgment and decisions	6
Management of people	6
Problem solving	6
Accountability	6
Stress resistance	6
Team working / team building	6
Leadership	5-6
Capacity to mobilise people	5
Analytical and reasoning skills	5
Analyse and structure information	5
Impact and influence	5
Planning and evaluation	5
Multitasking	5
Make conservative decisions	3-4
Discretion and Confidentiality	3

NOTES
(*) Further detail to be considered

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
2nd ECVET Workshop		
24.03.2012		

2.7.14	Job Title	Category
NPP – O Maintenance	**Maintenance Planning Officer** Maintenance Planning Engineer	Technician
The person responsible for scheduling and updating the maintenance activities according to the plant necessities.		Entry level qualification ISCED 5-6

Roles / Functions

- Prepare, plan and launch the maintenance work packages and plant modifications.
- Prepare and schedule together with the Operation and Engineering departments the activities for next refuelling outage and eventual outage.
- Monitor daily maintenance activities in order to accomplish the work schedule.
- Record maintenance activities documents and update the historic registry of maintenance activities according to current regulations.
- Reinforce high levels of performance and plant expectations.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Plant modifications.	6
Radiation protection.	5
Safety culture and Nuclear Safety.	5
Project management. Programme and project planning.	4
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control, nuclear science, fuel cycle, nuclear codes.	4
Operating Experience feedback.	4
Error Prevention Techniques and Human Performance Tools, Communication techniques.	4
Testing and inspections	4
Quality control.	3-4
Foreign material control.	3-4
Logistic and supply.	3-4
Self-assessment and Performance Improvement methods.	3
National and international regulations and licensing.	3
Administrative requirements	3
Industrial safety.	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Prioritise maintenance activities with plant necessities and expectations. Project prioritisation.	6
Managing and updating the plan developing and monitoring tasks, Communicating effectively.	5
Record work completed packages documentation and prepare reports.	5
Supplying information for management control and for task assignation.	5
Implementation of safety requirements into maintenance schedule.	4

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Accountability.	6
Analytical and reasoning skills.	6
Analyse and managing of information.	6
Planning and evaluation.	6
Team working.	5
Reliability to meet deadlines.	5
Priority setting.	5
Volition (capability of getting things done)(*)	4-5
Capacity to allocate tasks and organise work.	4-5
Eye for detail-accuracy.	4-5
Communication and diplomacy with other departments and external suppliers.	4

NOTES
(*) Item under discussion

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
J. IGLESIAS/F. PASQUALONI		
24.10.2012		

2.7.15	Job Title	Category
NPP – O Maintenance	**Civil Engineering Technician** Maintenance Planning Engineer	Technician
The civil engineering technician prepares and carries out –alone or within a team - civil engineering maintenance or building operations, on a nuclear power plant. He/She works for nuclear principals, or contractors.		Entry level qualification ISCED 1-8

Roles / Functions

- Carry out a civil engineering maintenance or building operation in a nuclear environment
- Ensure safe and error-free operation, adhering to required parameters and limits and operational, quality and safety regulations
- Ensure safety, radiation protection for him/herself and his/her team, manages environmental aspect and waste
- Manage the organisational and financial aspect of the operation (respect of deadlines, costs, customer's satisfaction)
- Manage eventually his/her team of workers.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Fuel cycle	
PWR technology and operation	
Safety and quality	
Radiation protection and ALARA approach	
Safety and environment	
Nuclear Physics	
Thermodynamics and Fluid Mechanics NPP civil design specifications	
Civil Engineering Methods (water resistance, structural resistance, *tenue APRP (accident par perte de refrigerant primaire)* Resistance in case of Primary Cooling Lost Accident Mechanical building	
Materials/Corrosion/Non-destructive testing	
General Maintenance Basic Program of Preventive Maintenance	
Field Engineering	
Improving field work reliability	
Communication	
Business economics	
Social law	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Ensure safe and error-free operation, adhering to required parameters and limits and operational, quality and safety regulations	
During the preparation phase, create and/or review the file describing the work to be performed and understand the importance of such files.	
As the work is being performed, use quality documentation from one's company or that provided by the client, make sure the log or quality assurance plan is understood by insisting on hold points Explain field work documents by differentiating between Case 1 and Case 2	

Check the signature on all documents as well as the documents' compliance (particularly for the guidelines) Release hold points Check the log	
See that appropriate authorizations are obtained before field work requiring them begins	
Write up project completion documents (Project completion report/minutes, feedback, internal reports, Computerized Maintenance Management System software (CMMS, e.g. SYGMA)...)	
Practice and/or have someone practice reliability improvement methods	
Understand the operator's "traffic regulations" (General Operating Rules (GOR) - Technical Operating Specifications (TOS))	
Interpret a safety risk analysis Check that the team understands it as well Make sure appropriate countermeasures are deployed	
Know one's position on the schedule of a unit outage	
Ensure safety, radiation protection for him/herself and his/her team, manages environmental aspect and waste	
Be aware of risk analyses and check for the presence of countermeasures Ensure safety equipment is available Enforce safety rules Mark worksite with signs according to risk type In the event of an accident, design or participate in a root cause analysis	
Understand potential interferences with other contractors on the site, particularly regarding safety and handling Participate in the creation of the prevention plan and share it with other field workers	
Participate in performing the assessment of the projected dose or be aware of it Ensure that the work environment is in keeping with the projected dose on a radiological level	
Apply the ALARA approach (As Low As Reasonably Achievable)	
In a nuclear power plant, check that the products in use are labeled as PMUC (Products and equipment used in nuclear plants) Check their Safety Data Sheets Ensure products' storing conditions and/or equipment are in keeping with regulations (retention tanks, zoning...)	
Keep the worksite clean and/or have someone keep it clean Comply with sorting regulations when packaging waste (depending on the type of waste and its level of contamination) Make arrangements for its disposal or understand how to dispose of it	
As soon as necessary, measure or have someone measure the dose of radiation to which equipment has been exposed Participate in decontamination of equipment or check that it is decontaminated	
Carry out a civil engineering maintenance or building operation in a nuclear environment	
Generally assess what the client expects from the contractor Identify and understand the specifications of the client, and more particularly all technical specifications: - Technical specifications of the building requiring maintenance, expertise, construction or dismantling - Technical specifications of the equipment and tools to be deployed as well as their deployment conditions	
Visit the worksite to make sure the field work is technically feasible Use appropriate equipment and calibrated equipment if needed	

Carry out field work while complying with documentation Use critical thinking when applying guidelines Constantly check the technical quality of the work being performed (technical control)	
Practice reliability improvement methods (self-checking/cross-checking/one-minute wait…)	
Manage the organizational and financial aspect of the operation (respect of deadlines, costs, customer's satisfaction)	
Differentiate between field work during a unit outage and field work when the unit is in service Know what impact a field work operation can have on the critical path Participate in prerequisite action or in its preparation	
See that regimes are obtained in a timely manner	
Prepare the logistics of one's trip to the site Manage site access for one's team, equipment, and for oneself Obtain access to the site	
Prepare and/or check on the logistics associated with field work (equipment, vinyl airlock, projected dose, scaffoldings, waste containers, regimes…)	
Participate in designing the organizational chart and/or understand it	
Stick to the budget, handle a contingency: if necessary, halt operations in a work area, track discrepancies If there is a wait, negotiate with the client about the payment of their hours	
Contribute feedback to improve the level of organization in future field work	
Manage eventually his/her team of workers	
Identify one's scope of responsibility and that of one's company	
Identify people to whom to report Communicate with the client if a problem occurs Keep the client updated about field work status Keep in touch with higher-ups	
Ensure individual protection equipment is worn	
Be sure that the team uses reliability improvement methods	
Adapts his/her management methods to the concerned persons	
Enforce safety rules	
Comply with and enforce legislation	
Inspires a real team working	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Depending on the context of exercise of profession (primary or secondary circuit, inside or outside a controlled area ...), the different skills implies limited, moderate or high level of responsibility and self-sufficiency :	
LIMITED LEVEL OF RESPONSIBILITY AND SELF-SUFFICIENCY This activity requires a limited level of responsibility and self-sufficiency which means that at least 4 of the following statements are true: - making mistakes will have minor or not very serious consequences, - the stakes for the company are moderate, - the policies adopted regarding activities and operation are that of the company or the client,	

- contacts take place within the company, - the activity is known, - the employee's area of activity is limited.	
MODERATE LEVEL OF RESPONSIBILITY AND SELF-SUFFICIENCY This activity requires a moderate level of responsibility and self-sufficiency which means that at least 4 of the following statements are true: - making mistakes will have serious consequences, but will not compromise safety or nuclear safety, - field work is performed on monitored quality equipment (QS), - the stakes for the company are high, - the policies adopted regarding activities and operation are that of the company or the client, and the employee needs to adapt them, - there are multiple contacts among people with various jobs as well as contacts with individuals from outside the company (other contractors), - a new type of activity is involved, but it remains simple, - the employee's area of activity is of moderate size and may involve interactions with other sites or field work operations.	
HIGH LEVEL OF RESPONSIBILITY AND SELF-SUFFICIENCY This activity requires a high level of responsibility and self-sufficiency which means that at least 4 of the following statements are true: - making mistakes will have serious consequences and will compromise safety or nuclear safety, - field work is performed either on equipment of high importance for safety (IPS) or on monitored quality equipment (QS), - the stakes for the company are very high, - the employee might have to produce creative ideas regarding activities and operation policies, - various contacts take place in a skilled fashion (contacts with the client), - new or complex activities are involved, - the employee's area of activity involves numerous interactions.	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
O. DERUELLE/C. DUC		
24.10.2012		

2.7.16	Job Title	Category
NPP – O Maintenance	**Process Equipment Engineer** --	Professional
Responsible for the maintenance and implementation of repairs or modifications to equipment such as pressure boundary equipment in a nuclear power plant. Examples of such equipment and systems include process valves of all major types, pressure vessels and heat exchangers, rotating machinery, filters and strainers, piping and fittings and miscellaneous equipment.		Entry level qualification ISCED 1-8

Roles / Functions

- The process equipment engineer works on maintenance, implementation of repairs or modifications projects of process equipment. He/she works mainly for the NPP operator. In some cases, he/she can work in a contracting company.
- For each kind of project, he/she is in charge of preparation, driving and capitalization.
- He/she is responsible of safety, radioprotection, availability of equipment and team management. He/she is in charge of deadlines, budgets, and financial management of the project.
- He/she produces feedbacks, proposes improvements and contributes to the sustaining of good practices.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
General Mathematics	5
General Chemistry	3
General Electrical Engineering	2 - 3
Hydraulic and Pneumatic Systems	2
Computer-aided engineering	
Engineering drawing - general	
Process System Reliability and Safety	
Tubing, rotating machines ...	
Control and Automation Systems	
Nuclear pressure equipment regulations	
General Mechanical Engineering	
General Nuclear Engineering	
Technical Writing	
General project management	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Preparation of maintenance, implementation of repairs or modifications project of process equipment	
Identify safety (nuclear and operational) requirements	
Prepare records, graphs, and drawings; Take a leadership role in preparing equipment-related documentation. This may include preparing equipment assessment documents, performance analyses reports, equipment quotation requests, technical specifications and component spec sheets, bid evaluations and making technical recommendations to purchase. When necessary, certify the equipment Design Specifications.	
Control and develop plans and procedures and technical specifications	
Determine the budget needed for the intervention, taking into account the optimization of the outage	
Allocate personnel to carry out activities within the performing organization.	

Establish a book of specification and select contractors	
Comply with statutory regulations and organisational QSE requirements	
Driving of maintenance, implementation of repairs or modifications project of process equipment	
Perform equipment-related tasks as requested by process system section heads and make recommendations, taking into consideration the feedback from the existing nuclear plants and cost targets.	
Interface with and utilize other discipline groups (such as process design & piping, metallurgy, electrical, C&I, civil) as needed to ensure complete equipment requirements are defined and/or solutions are provided.	
Lead the engineering interface with suppliers, contractos and station staff to resolve equipment problems, taking into account safety requirements, and legislation	
Ensure the work performed meets the quality requirements in accordance with Company and Business Unit QA programs and manuals.	
Perform site visits and inspections on quality, safety and radioprotection points of view.	
Watch up the performance indicators, the planning, the financial reports, the quality system ...	
Coordinate sub contractors, make some contractual amendments if needed	
Communicate with safety regulators, civil society …	
Capitalization (building on)	
Build on good practices, techniques, safety methods, radioprotection, organization …. to improve further similar operations	
Propose improvements on procedures, methodologies …	
Take a leadership role in the preparation of concise engineering reports.	
Provide on the job training and mentoring of process equipment staff as required.	
Make financial statements, dosimetric statement, environmental statements, safety statements.	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Dealing with Difficult Situations	
Team Working	
Accountability	
Analytical thinking	
Capacity to act upon problems	
Conscientiousness	
Corporate Culture	
Planning and evaluation	
Priority setting	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
O. DERUELLE/C. DUC		
25.10.2012		

2.9.01	Job Title	Category
NPP – O CANDU	**Fuel Machine Operator** Nuclear Fuel Operator Fuel Handling Panel Operator/Specialist	Technician
Responsible, within a CANDU unit, for all daily operation activities and maintenance programs for fuel handling related systems and equipment including fuelling machines, during normal operation, planned outages and abnormal plant conditions.		Entry level qualification ISCED 3

Roles / Functions

- Refuels and assists refuelling operation for CANDU reactor fuel channels
- Handles fresh nuclear fuel from storage to warehouse of refuelling machine
- Handles burned nuclear fuel from warehouse of refuelling machine to discharge bay
- Monitor thermo-hydraulic parameters during refuelling process
- Participate at fuel channel inspection activities
- Participate at maintenance refuelling machine activities
- Monitor environmental conditions during radiation-related work activities within ionising radiation environments

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Fuel handling related systems and equipment, including fuelling machines, for CANDU NPP	3
NPP basic knowledge (*mechanical/electrical/I&C* equipment)	2
Nuclear and radiation science	2
Fluid mechanics	2
Materials Science (Corrosion and Environmental Degradation of Materials)	2
Mechanical Engineering (Pipe systems, pumps)	2
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Read and interpret Engineering Drawings	3
Nuclear safety - Record Information on Radiation Protection within Ionising Radiation Environments	3
Nuclear safety - Respond to Radiation Incidents Within Ionising Radiation Environments	3
Control of refuelling machine for CANDU reactor	3
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Eye for details/ accuracy	3
Priority setting	3
Problem solving	3
Stress resistance	3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN		
12.10.2012		

2.9.02	Job Title	Category
NPP – O CANDU	**System Responsible Engineer** Support System Engineer-RSE	Professional
Provides overall coordination for all daily operation activities and maintenance programs for a specific system of a CANDU unit (for instance fuel handling related systems and equipment including fuelling machines), during normal operation, planned outages and abnormal plant conditions.		Entry level qualification ISCED 5

Roles / Functions

- Manages and supervises the Operation and Maintenance activities of the assigned system and equipment (technical engineers, control room panel operators and field specialists (mechanical, electrical and I&C maintenance technicians)).
- Identifying technical problems and recommends resolutions during operation phase and
- Accurately monitors and records the status and work progress for assigned system and equipment.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Hydraulic and pneumatic systems and components	3-4
Gas systems (conducts, blowers, tanks)	3-4
HVAC systems (conducts, blowers, fans, valves, filters, heaters, coolers, etc)	3-4
Radioactive waste treatment systems	3-4
I&C sytems	3-4
Electrical systems (buses, transformers, switches, breakers, batteries, ...) - Electrical equipment - Electrical installations - Electrical instrumentation - Electrical machines and drives - Electrical motors	3-4
NPP systems	2-3
Radiation protection	2-3
Industrial safety	2-3
Heavy water as cooling and moderator for CANDU NPP	
1/ Hydraulic installations 2/ Pipe systems, valves, pumps and turbines 3/ Pneumatic pipes, compressors, air tanks	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Maintenance, service and repair of equipment (mechanical, electrical and i&c)	3-5
Inspection of equipment (electrical, mechanical)	3-5
Work analysis and breakdown	3-4
Work planning and schedule	3-4
Read and interpret functional diagrams	3-4
Read and interpret engineering drawings	3-4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capacity to allocate tasks and organise work	3-4
Ability to understand and be understood	3-4
Capacity to communicate technical or specialised information	3-4

Team leadership	3-4
Decisiveness	3-4
Problem solving	3-4
Eye for detail/accuracy	3-4
Safety culture	2-4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN		
12.10.2012		

3.1.01	Job Title	Category
NPP – D Management	**Project Manager** Safety Analysis Engineer	Professional
Responsible for managing complex projects or provide support in other specific parts of the projects		Entry level qualification ISCED 6

Roles / Functions

- Establish the phases of the project and the priotities defining the strategic plan implementing the organisation project management strategies
- Take responsabilities for completing tasks and procedures
- Establish the conformity of the project with the authorized design, conformity with license and proceedings
- Implement the risks and safety measurements taking responsabilitie of the supervision of the risk of the process and the safety measurements stablished
- Responsible of the contacts with the regulatory body
- Communication with workers defining proper communication channels at appropriate level
- Establish methods for measuring how goals are met

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
General management: budget, QSE, planning, defining processes, management and worflow of the project	7
Decommissioning projects and Radiation safety	6
Risk estimation and safety requirements. Management the risk assessment	6
Safety culture	6
National and international regulations and licensing	6
Quality control	5
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Make the identification of safety requirements	7
Ability to Planning and stablish the phases of the project and the priotities defining the strategic plan	7
Apply principles and practice associated with a variety of appropriate business improvement techniques	6
Control and develop plans and procedures	7
Schedule working processes and project priorization	8
Comply with regulatory standars and regulation requirements	8
Managing resources involved in the project (Human and economic)	7
Perform Risk estimation and value management and cost control. Management the risk assessment	6
Communication effectively (technical workers, RBs, and NPP Owner property	6
Complying with statutory regulations and organisational QSE requirements	6
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Dealing with Difficult Situations	7
Leadership and Team Working	7

Planning and evaluation	7
Analytical thinking	7
Capacity to act upon problems	7
Conscientiousness	7
Corporate Culture	7
Analyse and structure information	7
Priority setting	7

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. MARCO ARBOLI		
22.10.2012		

3.1.02	Job Title	Category
NPP – D Management	**Contractors' Manager** --	Professional
To manage the contractors that are engaged at the decommissioning activities		Entry level qualification ISCED 6-7

Roles / Functions

- To identify (together with the Project Manager) areas/activities that need to be performed by the suppliers and vendors (further Contractors).
- To manage the tender procedure(s) and contracting of the external organisations in line with the NPP management system, decommissioning plan and national legislation.
- To manage obtaining the necessary permits and approvals for contractors' work at the NPP site.
- To supervise the work performed by the contractors/subcontractors and to ensure that the contractors' work in performed in line with the contract and the decommissioning plan.
- To intervene, analyze, manage and resolve business conflicts between the company and the Contractors.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Management - finance and administration	6-7
Project management (incl. tools)	6-7
Human resource management	6
Economics	6
Decommissioning	4
Engineering (preferably nuclear)	3
Health and safety	4
SKILLS (Technical competence, abilities)	EQF level (1-8)
Goal oriented and defining set plans to achieve business goals	7
Focus on safety, security and environment	7
Communication and negotiation skills and reaching agreement between parties	7
Ability to develop and maintain effective working relationships with Contractors	6
People management and staff supervision	6
Keep up to date with market trends and new developments utilizing information for business improvement	5
Information technology	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Prioritising and working independently	7
Team work and building	6
Supervision, monitoring and appraisal abilities	6
Dealing with difficult situations – stress resistance	6
Take effective and timely decisions	6
Self accountability	5

Flexible and professional attitude in changing environment	5

NOTES
This job can be combined with the 3.1.01 Project Manager.

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BATANDJEVA		
24.10.2012		

3.1.03	Job Title	Category
NPP – D Management	**Management System Manager** IMS Manager	Professional
Responsible for the establishment, implementation, assessment and continually improvement of a management system (MS) that integrates safety, health, environmental, security, quality and economic elements to ensure that safety is properly taken into account in all decommissioning activities.		Entry level qualification ISCED 7

Roles / Functions

- To develop and ensure implementation of an MS plan and procedures for decommissioning and termination of license;
- To ensure that safety, security and environmental principles, requirements and guidelines are applied throughout decommissioning in line with the national legislation, international standards (ISO, IAEA, etc.) and best international practice;
- To ensure adequate organisational structure and allocation of management responsibilities for decommissioning, as well as mechanisms for resource management, measurement, assessment and improvement process throughout the decommissioning.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Business administration	7
Quality assurance, management system and environmental management	7
Human recourse management	6
National legislation on management system and international standards (e.g. ISO, IAEA)	6
NPP organisation, and lifecycle (in particular decommissioning)	5
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Resource management (human, infrastructure and working environment) and tools	7
Management and control of processes, purchases, documents and communication	7
Team leading, motivation of staff and conflict resolution skills	7
Strategic planning	6
Managing organisational change	5
Understanding and promotion of safety culture	4
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Analysis and propose improvement of processes in a dynamic and changing environment	7
Communication abilities to deal with the staff, support the Project Manager and interface with stakeholders (e.g. regulators, auditors) and management of conflict situations	6
Ability to prioritise tasks and focus on deliverables	6
Keep abreast with changes and developments in new standards and legislation	5
Personal accountability	6

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BATANDJIEVA		
23.10.2012		

3.1.04	Job Title	Category
NPP – D Management	**Training Manager** --	Professional
Responsible for the implementation of the training policy of the company. Works with the HR department to set future directions in terms of training in accordance to operations planned on the site (SGR, decennial outage, dismantling ...)		Entry level qualification: ISCED 5

Roles / Functions

- Define or apply the training policy of the company in relation to HR proposal.
- Anticipate and manage planning of employment and competences required.
- Develop, or make develop standards of job profile / competence / certification and syllabus.
- Specify the standards for vocational and continuing training
- Discuss with stakeholders the opportunity to design training as needed
- Reflect on the opportunity to use other training methods e / b / m-learning
- Ensure the implementation of European approach (ECVET…)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Education, qualification and CPD frameworks	6
Pedagogical methods	6
Nuclear power plants job descriptions	5
Bespoke training requirements (mock-ups, OJT…)	5
Development of training (for skilled worker - qualified craftsman, performing qualified activities)	5
Methodology of assessment and competency assurance	5
Labour law / code	4

SKILLS (Technical competence, abilities)	EQF level (1-8)
Development of standards for competence / training / certification and syllabus.	5
Monitor training	5
Prepare the training plan for the entire company	5
Ensuring effectiveness of training	

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Discuss with stakeholders and social partners	6
Management of people	5
Developing and maintaining productive working relationships through training	5
Quality of listening and synthesis	5
Effectiveness within complex organisatio5nal structure	5
Ability to deliver messages and possibility to teach	5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
P. LIVOLSI		
24.10.2012		

3.1.05	Job Title	Category
NPP – D Management	**Licensing Manager** --	Professional
Managing the licensing process related to decommissioning (after spent fuel removal) and site release Managing all aspects at the NPP that are required for licensing of decommissioning activities and implementation of licensing conditions Interfacing with the regulatory authorities to obtain required authorisations		Entry level qualification ISCED 7

Roles / Functions

- Ensuring that licensing documents (decommissioning plan, final survey report, etc.) are in developed in compliance with the regulations, national strategies/policies and international best practice and standards; and authorisations granted
- Interfacing with the regulatory authorities and stakeholders with respect to radiological and non-radiological hazards and site end-state
- Control the implementation of licensing requirements, conditions and regulatory prescriptions and recommendations
- Assist NPP departments in demonstrating compliance with regulatory requirements and recommendations

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Regulation and licensing of decommissioning - All legislation, including strategies and policies, and procedures related to protection of public, workers and environment from radiological and non-radiological hazards during decommissioning.	7-8
Nuclear safety, radiation, waste and transport safety, emergency preparedness	7-8
Development of a decommissioning plan and supporting documents	7
Decommissioning activities, radioactive waste management, clearance of material and site release, sucurity and physical protection	5-6
Project management: budget, human resources, scope, risk assessment	5-6
Integrated management system	5-6
Requirements management system	5-6
Communication techniques: Negotiation, presentations, writing	4-5
Nuclear power plant	
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Interpretation and analysing the licensing requirements	7-8
Planning, scheduling of the licensing process for decommissioning (i.e. development of a licensing plan)	7
Understanding of the interdependencies and interfaces of regulations issued by different authorities	7
Overseeing the licensing process and ensuring the timely implementation of the licensing plan (e.g. submission of required documentation and completion of the licensing process)	7
Understanding the safety arguments and the importance of hazards associated with NPP decommissioning	6
Interfacing with stakeholders (political groups, regulators, technical experts and the public)	6
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Interpersonal - assertiveness	
Interpersonal – capacity to allocate tasks and organise work	

Interpersonal – capacity to mobilise people	
Interpersonal – change leadership	
Interpersonal – communication ability	
Strategic thinking	
Multitasking	
Pragmatism	
Eye for detail	
Management of people	
Feel at ease in public	
Problem solving/dealing with difficult situation/conflict resolution	

NOTES
Standard ISO 10006: description of the tasks All EQF levels –1? Decommissioning definition – add from IAEA SR WS-R-5

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BATANDJIEVA		
24.02.2012		

3.1.06	Job Title	Category
NPP – D Management	**Communication Manager** --	Professional
Communication Manager: responsible for managing communication of complex information		Entry level qualification: ISCED 6

Roles / Functions

- Develops communication strategies and provides advice to internal and external stakeholders and liaises between the decommissioning project, people, regulators
- Implement strategies for a Communication Plan (CP).
- This role may lead a small team
- Establish the phases of the project and the priorities defining the communication strategic plan. A Communication Plan includes policies, strategies, resources, communication objectives and actions, both internal and external, following the project organization
- Define Proper communication channels at appropriate level. Including communication with target groups identify and social statements
- Take responsibilities for completing tasks and procedures.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Know phases of the CP and worflow following the different phases of the project.	6
Communication techniques (technical presentations; technical writing)	6
Planning capacity, organization and evaluation	6
Radiation science and Decontamination process at basic level	3
Safety and environmental awareness Principles	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Establish decommissioning communication goals. The goals of the decommissioning communication activities are to increase public confidence, commitment and ability to carry out the project.	7
Planning and stablish the phases of the CP and the priorities, defining the strategic CP	6
Defining processes to control and develop a external and internal CP to provide advice to internal and external stakeholders	6
Select appropriate media and frequency of use Communication effectively (public, municipalities, social stakeholders, media, RBs, NPP Owner property and select the appropriate communication channels	6
Define with clarity over roles and responsibilities	6
Managing resources involved in the communication project (Human and economic) and decisions makers (e.g. members), user groups, providers, local infrastructure bodies, local municipalities, etc	6
Stablish the scheme of the key elements to communicate (What's to say?, Who should speak?; Who?; Through what means and how often? in what context?..)	5
Improve efficiency, effectiveness, and realism through the implementation of suggestions resulting from self-assessments and from other stakeholders	5
Carry out the appraisal or assesment of the CP results, CP reports, etc	5

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Ability to chair and communicate in meetings	7
Diplomatic and Negotiation skills	7
Didactic skills and Capacity to communicate specialised information dealing with difficult situations	7
Effective interactive Communication	7
Ability to planning and evaluation	6
Capacity to analyse and structure the CP to support the strategic objectives and provide action items for the organizational communication	6
Team leadership and Team working	6
Capacity to act and to analyse and structure information	6

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. MARCO ARBOLI		
24.10.2012		

3.1.07	Job Title	Category
NPP – D Management	**Financial Manager** Cost / Procurement Manager	Professional
Responsible for the management of the financial resources for decommissioning in line with the approved decommissioning plan, budget and schedule		Entry level qualification ISCED 7

Roles / Functions

- To support the Project Manager in the planning, implementation and termination of the decommissioning activities in a timely, effective and safe manner (incl. licensing authorisations/approvals, communication with stakeholders, use of subcontractors, management of radioactive waste)
- Manage financial accounting, monitoring and reporting systems – e.g. manage and control the use of funding for the dedicated decommissioning activities, as outlined in the decommissioning plan and authorisations and within the allocated budget.
- Ensure compliance with relevant financial regulations.
- Analyse changes and future trends and advise the Project Manager accordingly.
- Conduct reviews of reports and evaluations for cost-reduction opportunities.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Economics	7
Financial administration	7
Financial regulations	6
Project management tools	5
Funding mechanisms for decommissioning and radioactive waste management	5
NPP lifecycle and in particular decommissioning activities	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Interpreting and analyzing financial information reporting on factors influencing business performance.	7
Monitoring and interpreting cash flows and predicting future trends.	7
Formulating strategic and long-term business (financial) plans.	6
Developing financial management mechanisms that minimize financial risk.	6
Keep abreast of changes in financial and regulations and legislation	6
Organisational and management skills	6
Mathematical skills	6
Analyzing competitors and market trends.	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Communication ability to liaise with auditors and other stakeholders (contractors auditors, solicitors, bankers and statutory organizations)	7
Ability to focus on deliverables in detail - producing accurate financial reports to specific deadlines;	7
Personal accountability	6
Teamwork and motivation of staff	5
Flexibility and open attitude to work in a dynamic and changing environment	5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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23.10.2012		

3.1.08	Job Title	Category
NPP – D Management	**Site Manager** --	Professional
Legal representative of the organization. General management of the decommissioning project.		Entry level qualification: ISCED 8

Roles / Functions

- Maintain contact with the Local and Administrative Authorities and trade unions
- Maintain the licensing conditions established by the regulatory authorities on the basis of the decommissioning project
- Maintain site standards with respect to safety, health physic, efficiency, etc, during the decommission process.
- Establish external contracts regarding security
- Implementation of an integrated management system directed to provide a single framework for the arrangements and processes to address all the goals of the organization.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Management of a team delivering a decommission project	7
General management. (budget, management, personnel, equipment and organizational culture)	7
Requirements for integrated management systems	7
Nuclear decommission practices	7
National and international legal framework	6
ALARA concept	6
Dose committeemen to workers and environ	6
Includes responsibilities for physical protection and security	6
SKILLS (Technical competence, abilities)	EQF level (1-8)
Coordinate planning, implementing and monitoring activities and projects	8
Overseeing and applying complex regulations and procedures	8
Coordinate personnel, equipment and organizational culture as well as the documented policies and processes as part of the management system	8
Coordinating response to contingency	7
Responsible for emergencies and lead and enforce safety culture	7
Carrying out the identification of safety requirements	6
Ability to ensure that facilities are operated and activities are conducted so as to achieve the highest standards	6
Supplying information for management control	6
Cost Controlling……	6
Manage, negotiate, direct, control of subcontractors	6
Monitor and maintain quality of process	6
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Discretion and confidentiality	8
Decisiveness: capability to make judgment and decisions	7

Planning and evaluation	7
Management of people	7
Leadership	7

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. MARCO ARBOLI		
24.10.2012		

3.2.01	Job Title	Category
NPP – D Decontamination	**Decontamination Planner** --	Professional
Responsible for the schedule of technical ways to eliminate or reduce the amount of radionuclide (fixed or not fixed) on materials and areas for the preparation of a nuclear reactor/installation decommissioning. Ensure coordination of the decontamination activities with the decontamination supervisor. Report to the decommissioning site/installation engineer.		Entry level qualification ISCED 4-5

Roles / Functions

- Assist supervision/management with the preparation of detailed decontamination planning
- Plans the decontamination activities and their management
- Compliance on statutory standards and ensures the implementation of nuclear security principles (nuclear safety, radiation protection, waste management, fire…)
- Develops decontamination planning and defines milestones
- Applies best practices
- Knowledge management and historic data from installation.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Methods and planning techniques (Gantt, Pert…)	5-6
Network modelling dependencies between tasks	5-6
Development of milestones	5-6
Radioactive Waste Management and disposal	5-6
Release procedures	5-6
Decontamination techniques (liquid, gel, Carboglass ...)	5-6
Decontamination situations (under water, mechanical, on workshop, chemical ...)	5-6
Radiological cartographies of the installation	5-6
Exemption threshold and release	5-6
Radiation protection	4-5
Industrial safety	4-5
SKILLS (Technical competence, abilities)	EQF level (1-8)
Planning and organization skills	5-6
Data collection and processing	5-6
Ability to plan technical and complex nuclear activities	5-6
Assess impact of decontamination techniques on decommissioning costing	5-6
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Knowledge management	5-6
Mentoring and coaching of others	5-6
Management of unexpected situations / conflict	5-6
Reliable, autonomous working	5-6
Communicate information to managers and the team	5-6
Eye for details/ accuracy	5-6

Safety culture	5-6
Radiation Protection culture	5-6
Take effective and timely decisions	5-6

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
P. LIVOLSI		
24.10.2012		

3.2.02	Job Title	Category
NPP – D Decontamination	**Decontamination Supervisor** Decontamination Team Leader	Technician
Responsible for the implementation of technical ways to eliminate or reduce the amount of radionuclide (fixed or not fixed) on materials for the preparation of a nuclear reactor decommissioning		Entry level qualification ISCED 3-4

Roles / Functions

- Provides technical solutions for decontamination
- Implements the appropriate decontamination techniques
- Oversees work by operators
- Participates in the management of radioactive waste generated (liquid, solid, gas)
- Identification of areas to be decontaminated.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Knowledge management	3-4
Radioactive Waste Management	
Evacuation procedures	
Decontamination techniques (liquid, gel, Carboglass ...)	
Exemption threshold and release	
Hazardous Waste treatment and disposal	
Decontamination situations (under water, mechanical, on workshop, chemical ...)	
Radiological cartographies of the installation	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Manage waste resulting from decontamination activities	
Implement appropriate decontamination techniques (liquid, gel, Carboglass ...)	
Apply and propose technical solutions applied in different situations decontamination (under water, mechanical, on workshop, chemical ...)	
Enforce best practices for decontamination	
Updates the mapping radiological while the progress of decontamination actions	

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Make reporting	4-5
Management attitudes	4-5
Exchange with radiation protection teams to validate from a dosimetric point of view, the decontamination techniques to use	
Inform operators on good practice	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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24.02.2012		

3.2.03	Job Title	Category
NPP – D Decontamination	**Decontamination Worker** --	Craft
The decontamination worker is involved in many activities related to the decontamination and/or management of radioactive waste. As a part of a team, he/she monitors the implementation of equipment, facilities and movement procedures of radioactive pollutants according to rules of nuclear safety and radiation protection standards.		Entry level qualification: ISCED 1-8

Roles / Functions

- Organise the work place for safe removal of radioactive contamination of an area or equipment under the supervision of the decontamination supervisor/planner.
- Perform decontamination of an area or equipment to reduce the exposure of workers or avoid the spread of contaminants.
- Perform treatment and storage of solid or liquid radioactive waste during the temporary or permanent shutdown of reactor/installation.
- Install ventilation equipment and air filtration.
- Verify individual contamination control devices, conventional nuclear protective equipment and monitoring and control the installation.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Decontamination techniques (liquid, gel, Carboglass ...)	4-5
Release procedures	3-4
Radioactive waste treatment systems and disposal	3-4
Exemption threshold and release	3-4
Decontamination situations (under water, mechanical, on workshop, chemical ...)	3-4
Radiological cartographies of the installation	3-4
Radiation protection	3-4
Industrial safety	3-4
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Prepare decontaminating solutions.	4-5
Hands-on and/or remotely operated equipment	4-5
Radioactive waste packaging	4-5
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Eye for details/ accuracy	4-5
Safety culture	4-5
Radiation Protection culture	4-5
Reliable, autonomous working	4-5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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24.10.2012		

3.3.01	Job Title	Category
NPP – D Preparatory W.	**Site Engineer** --	Professional
In close co-operation with the site manager and the project manager, the site engineer is responsible for the general layout arrangements in site, health, safety and security arrangements, the co-ordination and supervision of the works.		Entry level qualification ISCED 1-8

Roles / Functions

- To plan the layout of the auxiliary facilities (warehouses, radioactive and non-radioactive waste storage areas, pathways, etc)
- To co-ordinate the different decommissioning activities to avoid interferences and damage to operating systems and structures.
- To draw the arrangements for the safety and security of the site
- To try to solve immediate problems and challenges of the decommissioning works
- To supervise the safe progress of the decommissioning activities
- The day-to-day control of the subcontractors and activities.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
NPP systems and structures	4-5
Industrial safety	4
Building construction	3-4
Inspection of construction methods and materials	3-4
Financial accountancy	3-4
Radiation protection	3-4
Radioactive waste treatment systems	2-3
Radioactive waste handling and storage	2-3
Electrical and mechanical installations	2-3
Machinery	2-3
4/ Construction site supervision	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Using and interpreting engineering drawings and documents	4
Planning, implementing, co-ordinating and monitoring engineering activities	4
Provide technical information for engineering activities	4
Writing requirements specifications, technical specifications, reports	4
Building site preparation	4
Project planning	4
Inspection and control of works	4
Assess health and safety of works	4

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Decisiveness	5
Flexibility	5
Global vision	5

Intellectual/problem solving and judgement skills	5
Multitasking	5
Planning and evaluation	5
Problem solving	5
Stress resistance	5
Safety culture	5
Drive for achievement	4
Initiative	4
Innovation	4
Open mind	4
Priority setting	4
Strategic thinking	4
Creative thinking	3
Critical analysis	3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. MARTÍN RAMOS		
24.03.2012		

3.3.03	Job Title	Category
NPP – D Preparatory W.	**Engineering Support Manager** Engineering Modification Manager	Professional
Design the plant modifications needed to proceed with the decommissioning.		Entry level qualification ISCED 1-8

Roles / Functions

- Design the plant modifications needed to adapt the systems to the decommissioning activities, attending to the following main drivers: short design life / simplicity / adaptability / non-interference / waste management.
- Interact and co-ordinate with the relevant/affected sections (Management, Decommissioning Operations, Dismantling, Demolition, Radiation Protection and Safety, Radioactive Waste) to avoid interference and ensure safety.
- Interact with the relevant specialists (Mechanical/Electrical/I&C) to ensure a sound design.
- Elaborate the drawings and diagrams of the plant modifications.
- Elaborate the technical specifications for the purchase of needed equipment and components and for the implementation of the modifications.
- Supervise the implementation of the modifications.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
NPP knowledge	4-7
Decommissioning techniques	4-6
Radioactive waste management	3-6
Radioactive protection	3-6
Process System engineering and design	5-7
Electrical engineering and design (1)	4-7
5/ cabling 6/ electric power system analysis 7/ electric power transmission and distribution 8/ electrical equipment 9/ electrical installations 10/ electrical safety 11/ electrical instrumentation	
Mechanical engineering and design (1)	4-7
- Hidraulic installations - pipe systems, tanks, pumps, valves - cooling/heating - pneumatic installations - pneumatic system and components - structural supports	
HVAC engineering and design (1)	4-7
1/ HVAC conducts and equipment (heaters, coolers, fans, valves, etc)	
Fire protection engineering and design (1)	4-7
SKILLS (Technical competence, abilities)	EQF level (1-8)
Specifying functional requirements	6-7
Specifying design requirements	6-7
Assess design options	6-7

Documenting design solutions	5-7
Equipment management and purchase	6-7
Writing requirements specifications, technical specification, reports	6-7
Process design	5-7
Design of electrical installations (1)	4-7
Design of mechanical systems (1)	4-7
Design of HVAC systems (1)	4-7
Design of fire protection systems (1)	4-7
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Ability to work in a proactive and autonomous way	5
Analyse the relevance of choices-critical self-reflection	5

NOTES
(1) The Support engineer/modifications manager will have a high EQF level in one of these disciplines, and a lower EQF level in the others.

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. MARTÍN RAMOS		
24.03.2012		

3.3.04	Job Title	Category
NPP – D Preparatory W.	**Decommissioning Planner** --	Professional
Design the plant modifications needed to proceed with the decommissioning.		Entry level qualification ISCED 1-8

Roles / Functions

- Design the plant modifications needed to adapt the systems to the decommissioning activities, attending to the following main drivers: short design life / simplicity / adaptability / non-interference / waste management.
- Interact and co-ordinate with the relevant/affected sections (Management, Decommissioning Operations, Dismantling, Demolition, Radiation Protection and Safety, Radioactive Waste) to avoid interference and ensure safety.
- Interact with the relevant specialists (Mechanical/Electrical/I&C) to ensure a sound design.
- Elaborate the drawings and diagrams of the plant modifications.
- Elaborate the technical specifications for the purchase of needed equipment and components and for the implementation of the modifications.
- Supervise the implementation of the modifications.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
NPP's preparatory work for decommissioning activities**.**	6
Optimizing the design of recycling chains/ODoRC.	6
Tools and machinery for decommissioning.	6
Radioactive waste treatment systems	6
Radiation protection	4
NPP systems	3
Hydraulic and pneumatic systems and components 12/Hydraulic installations 13/Pipe systems, valves, pumps and turbines 14/Pneumatic pipes, compressors, air tanks	3
Gas systems (conducts, blowers, tanks)	3
HVAC systems (conducts, blowers, fans, valves, filters, heaters, coolers, etc)	3
I&C sytems	3
Electrical systems (buses, transformers, switches, breakers, batteries, ...) - Electrical equipment - Electrical installations - Electrical instrumentation - Electrical machines and drives - Electrical motors	3
Industrial safety	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Plan the decommissioning activities (optimal processes in the optimal configuration for decommissioning)/derived from ODoRC.	6
Plan the selective decommissioning activities (in the view of reusing specific equipment)/ derived from DofEoL.	6
Work analysis and breakdown	5
Work planning and schedule	5

Read and interpret functional diagrams	3
Read and interpret engineering drawings	3
Maintenance, service and repair of equipment (mechanical, electrical and i&c)	3
Inspection of equipment (electrical, mechanical)	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capacity to allocate tasks and organise work	5
Ability to understand and be understood	5
Capacity to communicate technical or specialised information	5
Safety culture	5
Problem solving	5
Eye for detail/accuracy	5
Team leadership	4
Decisiveness	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN		
24.10.2012		

3.3.05	Job Title	Category
NPP – D Preparatory W.	**Decommissioning Supervisor** --	Technician
Decommissioning Supervisor reports to the decommissioning Site Engineer and is responsible for the safe and efficient management of a team undertaking nuclear decommissioning activities. The Decommissioning Supervisor manages, implements and monitors plant, equipment and personnel and ensures that Health & Safety legislative requirements are adhered to.		Entry level qualification ISCED 3

Roles / Functions

- Allocate effectively and fairly work to the decommissioning team and supervise radiation related work activities.
- Manage a team delivering a decommissioning project, ensuring that key objectives are achieved.
- Implement safe access systems in a radiation/contamination controlled environment.
- Enable learning within the decommissioning team through demonstration, instruction and coaching.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Nuclear decommissioning practices /NDP	3
Radiation protection	3
NPP systems	2
NPP's decommissioning at the end-of-life as a phase in a complex recycling chain/DofEofL	2
Hydraulic and pneumatic systems and components 15/Hydraulic installations 16/Pipe systems, valves, pumps and turbines 17/Pneumatic pipes, compressors, air tanks	2
Gas systems (conducts, blowers, tanks)	2
HVAC systems (conducts, blowers, fans, valves, filters, heaters, coolers, etc)	2
Radioactive waste treatment systems	2
I&C sytems	2
Electrical systems (buses, transformers, switches, breakers, batteries) - Electrical equipment - Electrical installations - Electrical instrumentation - Electrical machines and drives - Electrical motors	2
Industrial safety	2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Work planning and schedule	3
Read and interpret functional diagrams	3
Read and interpret engineering drawings	3
Maintenance, service and repair of equipment (mechanical, electrical and i&c)	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capacity to allocate tasks and organise work	5

Team leadership	5
Decisiveness	5
Safety culture	5
Problem solving	5
Eye for detail/accuracy	5
Ability to understand and be understood	4
Capacity to communicate technical or specialised information	4

NOTES
When there is spent fuel in the pool, the presence of Decommissioning supervisor is required in each shift.

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN		
23.10.2012		

3.3.06	Job Title	Category
NPP – D Preparatory W.	**Decommissioning Operator** Decommissioning Operative	Craft
The decommissioning operator controls and operates basic decommissioning plant and equipment efficiently and safely. He reports and investigates deviations from routine operating conditions and deals with basic process upsets. He is also capable of minimising and transferring waste and associated decommissioning matters arising.		Entry level qualification ISCED 3

Roles / Functions

- Prepare the work area for decommissioning activities
- Support and prepare alpha or beta/gamma radiation/contamination controlled work areas.
- Operate ancillary equipment such as cranes, fork lift trucks etc.
- Operate in a pressurised suit environment.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
NPP systems	2
NPP's decommissioning at the end-of-life as a phase in a complex recycling chain/DofEofL	2
Nuclear decommissioning practices (decommissioning activities within the nuclear industry)/NDP	2
Hydraulic and pneumatic systems and components 18/ Hydraulic installations 19/ Pipe systems, valves, pumps and turbines 20/ Pneumatic pipes, compressors, air tanks	2
Gas systems (conducts, blowers, tanks)	2
HVAC systems (conducts, blowers, fans, valves, filters, heaters, coolers, etc)	2
Radioactive waste treatment systems (the minimisation, packaging and removal of hazardous materials and transfer of materials to designated storage area)	2
I&C systems	2
Radiation protection	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Assemble and dismantle nuclear decommissioning equipment.	4
Operate, maintain, monitor and adjust appropriate nuclear decommissioning equipment	4
Decontamination of radioactive plant and materials.	4
Minimise and package radioactive materials	4
Removal and transfer hazardous materials etc to designated storage locations.	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Basic skills in communications, numeracy and ICT	4
Team Working and Personal Development	5
Take responsibility for completing tasks and procedures	5
Work independently subject to overall direction or guidance	5
Contribute towards the improvement of collaborative working	5

Take responsibility for coaching others where appropriate	4
Take responsibility for personal development	5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN		
24.10.2012		

3.3.07	Job Title	Category
NPP – D Preparatory W.	**Decommissioning Worker** Mechanical / Electrical / I&C Decommissioning Worker	Craft
Decommission mechanical / electrical / I&C equipment, remove, package, handle and store (in site) the radioactive waste generated by equipment decommissioning.		Entry level qualification ISCED 2

Roles / Functions

- Organise the work place for safe decommissioning of mechanical/electrical/I&C equipment under the supervision of the Team leader
- construct scaffolding or erect containment areas prior to mechanical/electrical/I&C equipment decommissioning;
- Drain the fluids from systems; remove oil and disconnect electric wires of pumps, motors, valves and other equipment; disconnect compressed air hoses from valves, etc.
- Install covers, plugs, etc in openings to prevent spread of contamination
- Respond to emergencies where radioactive substances are present
- Perform the work following written procedures under the supervision of the Team Leader.
- Clean the work place, and remove any radioactive or contaminated materials.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
NPP systems	2-3
Hydraulic and pneumatic systems and components 21/ Hydraulic installations 22/ Pipe systems, valves, pumps and turbines 23/ Pneumatic pipes, compressors, air tanks 24/ Gas systems (conducts, blowers, tanks)	1-2
HVAC systems (conducts, blowers, fans, valves, filters, heaters, coolers, etc)	1-2
Radioactive waste treatment systems	1-2
I&C sytems	1-2
Electrical systems (buses, transformers, switches, breakers, batteries, ...) - Electrical equipment - Electrical installations - Electrical instrumentation - Electrical machines and drives - Electrical motors - Tools and machinery	1-2
Radiation protection	1-2
Industrial safety	1-2

SKILLS (Technical competence, abilities)	EQF level (1-8)
Service mechanical/electrical equipment	2-3
Fitting mechanical and electrical equipment	2-3
Tools and machines	2-3
Radioactive waste packaging (this is not in the KSC Catalog)	2-3
Read and interpret Engineering Drawings	1-2

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Eye for details/ accuracy	2-3
Safety culture	2-3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. MARTÍN RAMOS		
24.02.2012		

3.4.01	Job Title	Category
NPP – D Dismantling	**Dismantling Planner** Dismantling Programmer	Professional
To plan / program the dismantling activities.		Entry level qualification ISCED 5

Roles / Functions

- To analyse and break down the NPP's disassembly of end-of-life in selective disassembly activities and destructive disassembly/dismantling activities, estimate its duration, and decide the workforce needed.
- To brief the dismantling team leaders on the dismantling plan.
- To supervise that the dismantling work is performed according to the Dismantling Plan.
- To inspect that dismantling Plan has been accomplished.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
NPP's disassembly of end-of-life as a phase in a complex recycling chain/DofEoL	5-6
Optimizing the design of recycling chains/ODoRC	5-6
Tools and machinery for dismantling	5-6
Radioactive waste treatment systems	5-6
Hydraulic and pneumatic systems and components 25/ Hydraulic installations 26/ Pipe systems, valves, pumps and turbines 27/ Pneumatic pipes, compressors, air tanks	3-4
Gas systems (conducts, blowers, tanks)	3-4
I&C sytems	3-4
Electrical systems (buses, transformers, switches, breakers, batteries, ...) - Electrical equipment - Electrical installations - Electrical instrumentation - Electrical machines and drives - Electrical motors	3-4
Radiation protection	3-4
Industrial safety	3-4
NPP systems	3-3
HVAC systems (conducts, blowers, fans, valves, filters, heaters, coolers, etc)	3-3
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Work analysis and breakdown	5-6
Work planning and schedule	5-6
Plan the destructive disassembly / dismantling activities (optimal processes in the optimal configuration for dismantling) /derived from ODoRC	5-6
Plan the selective disassembly activities (in the view of reusing specific equipment)/ derived from DofEoL	5-6
Maintenance, service and repair of equipment (mechanical, electrical and I&C)	3-5
Inspection of equipment (electrical, mechanical)	3-5
Read and interpret functional diagrams	3-4

Read and interpret engineering drawings	3-4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capacity to allocate tasks and organise work	4-5
Ability to understand and be understood	4-5
Capacity to communicate technical or specialised information	4-5
Team leadership	4-5
Decisiveness	4-5
Safety culture	4-5
Problem solving	4-5
Eye for detail/accuracy	4-5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN		
24.02.2012		

3.4.02	Job Title	Category
NPP – D Dismantling	**Dismantling Supervisor** Dismantling Team Leader / Foreman	Technician
To lead and supervise a team of workers in specific works of decommissioning.		Entry level qualification ISCED 3

Roles / Functions

- To analyse and break down the assigned work in activities or tasks, estimate its duration, and decide the workforce needed.
- To brief the workers on the work and activities of decommissioning.
- To distribute the tasks among the workers of the team.
- To supervise that the work is performed effectively and safely.
- To inspect that result of the work has been accomplished.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Hydraulic and pneumatic systems and components - Hydraulic installations - Pipe systems, valves, pumps and turbines - Pneumatic pipes, compressors, air tanks	3-4
Gas systems (conducts, blowers, tanks)	3-4
HVAC systems (conducts, blowers, fans, valves, filters, heaters, coolers, etc)	3-4
Radioactive waste treatment systems	3-4
I&C sytems	3-4
Electrical systems (buses, transformers, switches, breakers, batteries, ...) - Electrical equipment - Electrical installations - Electrical instrumentation - Electrical machines and drives - Electrical motors	3-4
Tools and machinery	3-4
NPP systems	2-3
Radiation protection	2-3
Industrial safety	2-3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Maintenance, service and repair of equipment (mechanical, electrical and i&c)	3-5
Inspection of equipment (electrical, mechanical)	3-5
Work analysis and breakdown	3-4
Work planning and schedule	3-4
Read and interpret functional diagrams	3-4
Read and interpret engineering drawings	3-4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capacity to allocate tasks and organise work	3-4
Ability to understand and be understood	3-4

Capacity to communicate technical or specialised information	3-4
Team leadership	3-4
Decisiveness	3-4
Problem solving	3-4
Eye for detail/accuracy	3-4
Safety culture	2-4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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24.02.2012		

3.4.03	Job Title	Category
NPP – D Dismantling	**Dismantling Worker** Mechanical / Electrical / I&C / Handler of heavy machinery Dismantling Worker	Craft
Dismantle mechanical / electrical / I&C equipment, remove, package, handling and storage (in site) the radioactive and non radioactive waste generated during the dismantling.		Entry level qualification ISCED 2

Roles / Functions

- Organise the work place for safe dismantling of mechanical / electrical / I&C equipment under the supervision of the Team leader
- Construct scaffolding or erect containment areas prior to mechanical/electrical/I&C equipment dismantling
- Dismantle or break down contaminated mechanical / electrical / I&C equipment (using suitable technologies or hand tools for equipment dismantling) with the view of reusing it or to handle it as radioactive waste.
- Handling of heavy machinery for dismantling
- Respond to emergencies where radioactive substances are present
- Implement the work according to work order and under supervision of the team leader
- Clean the work place, and collect and remove any radioactive or contaminated materials.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
NPP basic knowledge (mechanical/electrical/I&C equipment)	2
Nuclear and radiation science	2
Dismantling technologies	2
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Read and interpret Engineering Drawings	3
Cutting sheet metal (manual and machine)	3
Tools and machines for dismantling	3
Radioactive waste packaging	3
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Eye for details/ accuracy	3
Priority setting	3
Problem solving	3
Stress resistance	3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN		
24.02.2012		

3.5.01	Job Title	Category
NPP – D Demolition	**Demolition Planner** --	Professional
To plan the demolition activities in accordance with the NPP decommissioning plan (e.g. endpoints, schedule, costs, human resources) To ensure coordination of the demolition activities and the implementation in accordance with the relevant safety standards and licensing conditions		Entry level qualification: ISCED 7

Roles / Functions

- Plans the demolition activities and their management (e.g. NPP staff, subcontracors), optimises the resources and ensures that the application of the ALARA, defence in depth and other safety principles in place;
- Plans systems, processes, tools and resources for demolition activities (e.g. taking into account the need for radioactive waste minimisation) and provides justification of the selected options to regulators and other stakeholders, as required;
- Develops and implements demolition control procedures and necessary staff training, in line with the NPP management system, national legislation, international safety standards and best demolition practice;
- Develop demolition schedules in line with the decommissioning project schedule, and identifies milestones and potential critical/problem areas;
- Analyse critical paths and restraints and integrates relevant safety, technical and other demolition requirements to establish logical work sequences and demolition programme/individual tasks.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Detailed knowledge and experience in demolition techniques, tools and practices at nuclear facilities	7
Knowledge of the radiological and industrial hazards associated with demolition.	6
Have a detailed knowledge of all relevant stakeholders (in particular regulators), their requirements, interrelationships, interactions and expectations	6
Knowledge of up-to-date planning tools	5
Have a sound knowledge of the Management system of the NPP; the licensing process and conditions	5
Extensive knowledge on project schedule analysis and development of actions to recover non-compliances	5

SKILLS (Technical competence, abilities)	EQF level (1-8)
Ability to plan technical and complex activities at nuclear facilities (NPPs)	6
Understanding of the demolition activities, the overall decommissioning project and the interfaces of various dismantling, decontamination, cleanup and waste management activities	6
Ability to prepare budgets, organisational schemes using appropriate techniques.	5
Develop and implement NPP standards and procedures based on the national legislation and best international practice	5
Ability to apply experience and lessons learned from in practice	4

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Safety, security and environmental focus	7
Project delivery focus	6
Personal accountability	6

Teamwork and ability to motivate people	5
Management of conflict / unexpected situations	5
Communicate information to managers and the team	5
Take effective and timely decisions	5

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BATANDJEVA		
22.10.2012		

3.5.02	Job Title	Category
NPP – D Demolition	**Demolition Civil Engineer** --	Professional
To provide technical and engineering support to the Project Manager in the planning, implementation and termination of demolition of NPP buildings and structures in accordance with the decommissioning plan, NPP procedures, national legislation and international standards and best practice		Entry level qualification: ISCED 7

Roles / Functions

- To select and ensure that the necessary equipment and tools for demolition of buildings and structures is in place;
- To support the decommissioning process through resolution of technical problems related to demolition in line with the safety and technical standards and best practice

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Engineering	7
Demolition technologies and tools	7
NPP design	6
Management	5
Radioactive waste management	4
Radiation protection	4
Industrial safety	4
Decontamination	4
Understanding of the site safety policy and design safety principles	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Awareness of hazards and development of plans and procedures for demolition of buildings and structures	6
Analyse and solve demolition problems and tasks, and provide innovative solutions	6
Monitor implementation of demolition plans and procedures to ensure compliance with project schedules, safety procedures and legislation.	6
Apply decontamination techniques, if required	5
Apply a range of demolition techniques, and understand their benefits and challenges	5
Apply mathematics, IT and other problem solving techniques.	4

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Put across complex information and ideas in clear and concise manner and present a well structured case.	6
Focus on delivery and solutions in line with standards and procedures and take effective decisions	6
Develop and maintain productive working relationships with colleagues (e.g. worker, Demolition Planner and Project Managers)	6
Provide learning opportunities for colleagues.	5
Manage his/her professional development by setting targets and planning how they will be met.	4
Personal accountability	

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BATANDJEVA		
23.10.2012		

3.5.03	Job Title	Category
NPP – D Demolition	**Demolition worker** --	Craft
The operator carries out demolition tasks respecting the planning stages. He/she uses demolition equipment (heavy or not, remote or not) and respects the demolition process. The operator uses devices to reduce the dust level in the work area. He/she removes materials resulting from demolition in accordance with the evacuation procedures.		Entry level qualification ISCED 1-3

Roles / Functions

- Use and implement the adapted equipment/tool for demolition, technical standards and best practices selected by the demolition engineer.
- Ensure demolition operations
- Identify the main types of materials and structures having a relation to the main techniques for demolition (thickness of the concrete walls, steel construction…)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Demolition tools and technologies (concrete blasting…)	3-4
Radioactive waste management system	3-4
Resistance of structure	3-4
Radiation protection	3-4
Industrial safety	3-4
Decontamination	3-4
NPP and nuclear installation design	3-4
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Assemble and dismantle nuclear demolition equipment.	4
Operate, maintain, monitor and adjust appropriate nuclear demolition equipment	5
Decontaminate potentially radioactive materials and equipment	4
Minimisation and packaging of rubble and other demolition waste	4
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Eye for details/ accuracy	3-4
Safety culture	3-4
Radiation Protection culture	3-4
Industrial safety	3-4
Personal accountability	3-4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
P. LIVOLSI		
25.10.2012		

3.7.01	Job Title	Category
NPP – D Rad. Waste	**Radioactive waste manager** --	Professional
Responsible for the management and safe treatment, storage and handling of radioactive waste, related RD&D and other activities (a manager of a WMO)		Entry level qualification ISCED 7

Roles / Functions

- Manages the waste management programme according to the safety, schedule and cost objectives required in the national legislation and by the organisations liable for nuclear waste
- Manages the safe construction and operation of the interim storage and final disposal facilities

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Strategic management	6
General management and risk management, QSE (occupational, general safety culture and its management) , especially Budget Management Business continuity planning, evaluation, planning, organisation and monitoring	6
Performance improvement	6
Project management	6
Economic aspects of nuclear energy and industry knowledge, Engineering economics	6
Auditing - management	6
Nuclear power plant: reactor fundamentals, reactor and power plant systems, ionizing radiation, heat generation and removal, steam supplies system, nuclear chemistry, instrumentation and control	6
Radioactive Waste Management	6
International treaties, national and international regulations and licensing	5
Radiation safety	5
Fuel cycle	5
Computer - general; Computer and IT literacy	5
Communication techniques (to various stakeholder groups), Negotiating Techniques	4-6
Technical Presentations	4
Technical Writing	4
Human Resources Management	3
Legislation, Policies and Procedures	3
Chemical Engineering	3
Building Construction	3
Geotechnical engineering	3
Control and Automation Systems	3
Power engineering	3
General Mechanical Engineering	3
Radiation and Reactor Fundamentals	3
Nuclear reactor operations (general)	3

Processing of nuclear fuel	3
Radioactive Material Transport	3
Emergency Preparedness	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Liaise with stakeholders	7
Understand complex regulations and procedures	5
Coordinate the response to a contingency	5
Identify of safety (nuclear and operational) requirements	5
Ability manage an organisation in general (management)	5
Public speaking	5
Identify and costing customer requirements	5
Resource analysis and planning	5
Complying with statutory regulations and organisational safety requirements	5
Control expenditure and income	4
Structuring of operations	4
General QS&E compliance	4
Conduct assessment of risks in the workplace	4
Monitor and maintain a safe working environment	4
Monitor and maintain the quality of processes	4
Quality & Process Management abilities	4
Monitor and report construction costs status during construction period	4
Perform risk and value management and cost control.	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Accountability	7
Conscientiousness	6
Decisiveness: capability to make judgment and decisions	6
Management of people	6
Capacity to mobilise people	6
Capability of getting things done (volition)	5
Communication skills	5
Problem solving	5
Analyse and structure information	5
Impact and influence	5
Planning and evaluation	5
Multitasking	5
Discretion and Confidentiality	5
Analytical and reasoning skills	4

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. PALMU		
24.02.2012		

3.7.02	Job Title	Category
NPP – D Rad. Waste	**Radioactive Waste Engineer - characterisation** Rad-Waste Engineer: classification-characterisation-clearance	Professional
To classify and characterize all radioactive waste from the NPP and its decommissioning for the safe handling, storage, clearance and record-keeping (traceability) of the waste		Entry level qualification ISCED 6

Roles / Functions

- Produce the technical specifications and procedures for segregating and decontaminating the wastes together with the RP for the characterization and classification radioactive waste and for their clearance (and required actions for clearance) in compliance with the national legislation and requirements for classification and clearance
- Characterize and classify the waste according to the technical specifications and procedures
- Provide guidance / work orders interfacing the handling and storage alternatives for the classified wastes

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Related radiation protection measures and their application	5
General Mechanical Engineering	5
Equipment and techniques of nuclear measurement	5
Decontamination techniques of wastes	4
Radiation measurements, activity measurements and calculations, and their development	4
Sorting techniques of radioactive wastes	4
Containers for various wastes	4
(System) Knowledge of NPP structures and active components (especially related to areas with potential and actual radioactivity) including history of incidents, deviations from normal operations	4
Treatment of solid rad wastes and their characteristics and origin	4
Treatment of liquid rad wastes and their characteristics and origin	4
Engineering Risk-Benefit Analysis	4
Chemical Engineering and Waste Management	4
Computer - general	4
Hazardous waste treatment and disposal	4
Engineering drawing - general	3
Lifetime Analysis	3
Technical Drawing	3
Concept and detailed design	3
Radiation and Reactor Fundamentals	3
Nuclear and radiation science	3
Power Plant Systems	3
Processing of nuclear fuel	3
Radiation effects on materials / radiation damage	2
Fuel Cycle	2

Radioactive Material Transport	
Radioactive Waste Management	
Radiological Contamination	
Radiological hazard analysis	
Risk assessment related to wastes	
Emergency Preparedness	
Emergency Response Planning	
Occupational Safety	
Quality Assurance	
Safety Management	
Security Systems, Applications and Concepts	
Radioactivity / Ionizing radiation	
Mechanics of Materials	
Arithmetic calculations	
SKILLS (Technical competence, abilities)	EQF level (1-8)
Applying appropriate radiation protection measures for waste sorting/in characterization	
Using radiation control and measurement equipment	
Computer literacy and use of waste record keeping program(s)	
Preparing records, graphs, and drawings	
Produce detailed drawings	
Understanding of complex regulations and procedures	
Use technical information to review detailed drawings	
Using and interpreting engineering data and documentation	
Using and interpreting engineering drawings and documents	
Use requirements in writing specifications, related to modifications	
Write technical specifications	
Building Structural Systems	
Read and interpret Engineering Drawings	
Read and interpret Functional Diagrams	
Materials Processing	
Metal flame-cutting	
Tools and machines	
Identification of safety (nuclear and operational) requirements	
Coordinate the response to a contingency	
Monitor environmental conditions during radiation-related activities	
Safely dismantle, remove and dispose of plant and equipment	
Working with computers - IT literacy	
Preparing reports	
Schedule working processes and prioritise tasks - (time management)	

Structuring of operations	
Workflow analysis	
Complying with statutory regulations and organisational safety requirements	
Monitor and maintain a safe working environment	
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capacity to allocate tasks and organise work	
Communication - Capacity to communicate technical or specialised information	
Pragmatism	
Accountability	
Capacity to act upon problems	
Capacity to analyse and structure information	
Numeracy	

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. PALMU		
24.02.2012		

3.7.03	Job Title	Category
NPP – D Rad. Waste	**Radioactive Waste Engineer - processing** Rad-Waste Engineer: handling-processing-storage	Professional
Ensure safe processing, handling (on-site), storage of all types of solid and liquid radioactive waste generated during decommissioning (including clean up of a site)		Entry level qualification ISCED 6

Roles / Functions

- Management of pre-treatment, treatment and conditioning of all types of radioactive waste in accordance with the procedures and in compliance with the established waste acceptance criteria for storage or disposal
- Handling of all types of waste on the territory of the NPP
- Emplacement of all types of waste in safe storage at dedicated facilities at the NPP
- Inspection of compliance of the radioactive waste (packages) with the acceptance criteria for processing, handling and storage
- Where non-compliance with the acceptance criteria is detected, takes corrective measures according to approved procedures
- Implementation of licensing conditions and prescriptions of the regulatory and other authorities
- Development and maintenance of records for all types of waste, and any incidents or accidents related to waste processing, handling or storage on the site
- Development and update of the working instructions and procedures in accordance with the approved (updated) decommissioning plan (safety case)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Techniques and requirements for solid radioactive waste pretreatment, treatment and conditioning	6-7
Techniques and requirements for liquid radioactive waste pretreatment, treatment and conditioning	6-7
Storage types and requirements for liquid and solid waste	4-5
Physics and chemistry	4-5
Nuclear engineering – radiation detection and instrumentation	4-5
Radiation protection	4
Emergency planning	4
Criticality safety (only for NPPs where a nuclear accident has occurred)	3-4
NPP Design, operation, shutdown and decommissioning	2-3
Radioactive waste disposal concepts and acceptance criteria	2-3
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Nuclear engineering - Management of hazardous chemical and radioactive waste	4
Perform visual and other tests of waste and waste packages	4
Monitor radiation conditions during work activities	3
Respond to radiation incidents	3
Working with computers (IT literacy)	3
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Capability to analyse, structure and record technical data	4
Capability to communicate technical information	4

Analytical thinking	4
Problem solving and judgement skills	4
Planning and evaluation	4
Eye for detail / accuracy	4
Decisiveness	

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DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BATANDJIEVA		
24.02.2012		

3.7.05	Job Title	Category
NPP – D Rad. Waste	**Radioactive Waste Worker - processing** Rad-Waste Worker: handling-processing-storage	Craft
Perform tasks related to processing, handling (on-site), storage of all types of solid and liquid radioactive waste generated during decommissioning (including clean up of a site)*		Entry level qualification ISCED 2

Roles / Functions

- Performing pre-treatment, treatment and conditioning of all types of radioactive waste in accordance with the procedures
- Handling of all types of waste on the territory of the NPP
- Emplacement of all types of waste in safe storage at dedicated facilities at the NPP
- Check of compliance of the radioactive waste (packages) for processing, handling and storage with the records/documentation
- Where non-compliance with the acceptance criteria is detected, reporting the need for corrective measures according to approved procedures
- Recording all types of waste, and any incidents or accidents related to waste processing, handling or storage on the site
- Implementation of working instructions and procedures in accordance with the approved (updated) decommissioning plan (safety case)

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Techniques and requirements for solid radioactive waste pre-treatment, treatment and conditioning	2-3
Techniques and requirements for liquid radioactive waste pre-treatment, treatment and conditioning	2-3
Storage types and requirements for liquid and solid waste	2-3
Physics and chemistry	2
Radiation detection and instrumentation	2**
Radiation protection	2**
Emergency planning	2**
SKILLS (Technical competence, abilities)	EQF level (1-8)
Working with computers (IT literacy)	3
Perform visual and other tests of waste and waste packages	2
Monitor radiation conditions during work activities	2
Respond to radiation incidents	2
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Capability to analyse, structure and record technical data	2
Capability to communicate technical information	2
Analytical thinking	2
Problem solving and judgement skills	2
Planning and evaluation	2
Eye for detail / accuracy	2
Decisiveness	2

NOTES
*gaseous releases during decommissioning and their control are covered in the Job description of Radiation Protection Officer **training is assumed to be part of the NPP access procedure

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. BATANDJIEVA		
24.02.2012		

3.7.07	Job Title	Category
NPP – D Rad. Waste	**Transport responsible** --	Professional
Perform tasks related to processing, handling (on-site), storage of all types of solid and liquid radioactive waste generated during decommissioning (including clean up of a site)*		Entry level qualification ISCED 6

Roles / Functions

- In charged of the coordination of the nuclear and radioactive material transport safely and efficiently on site
- Establish the basis for the transport of nuclear material (fuel cycle,..
- Design of equipment and procedures for the safe and efficient transport of nuclear materials.
- Design procedures for clearance as appropriate

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
General and specific Physics and Radiochemistry,	6
National and International regulatory requirements for wastes and nuclear and radioactive transport	7
Radiation protection basic and specific including contamination checking, and decontamination procedures	6
Wastes package and management	6
Emergencies	6
General and specific Physics and Radiochemistry,	6
National and International regulatory requirements for wastes and nuclear and radioactive transport	7
SKILLS (Technical competence, abilities)	EQF level (1-8)
Identification of safety (nuclear and operational) requirements	6
Using and interpreting activity limits of radionuclide, disposal wastes and characterization, limits for packages, transport index, shielding, criticality, safety index, labelling for radioactive contents.	7
Understanding of complex regulations and procedures (national and international) on site and off site	7
Using and interpreting safety standards and applied including limits on transport index, criticality safety index and radiation levels for packages. As well as policy for exemption and clearance criteria	7
Understand the fundamental concepts for transport as that safety is vested in the package, the types of containment system.	7
Ability to adopt best practices at the operating level to promote effectiveness of the confinement system..	6
Complying with statutory regulations and organisational QSE requirements	7
Ensure that the organization provide adequate measurements of protection as shielding to protect workers, the public and the environment against the effects of radiation	6
Understanding consequences of accidents and radiological impact	6
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Dealing with Difficult Situations	6
Team Working	5

Planning and evaluation the transport using national and international regulations	6
Capability to make decisions	6
Capacity to act upon problems	6
Priority setting	6

NOTES
Listed as craft category; questionable function.

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. MARCO ARBOLI		
24.10.2012		

3.8.01	Job Title	Category
NPP – D Maintenance	**Decommissioning Maintenance Engineer** Decommissioning Maintenance Manager Decommissioning Site Engineer	Professional
The *Decommissioning Maintenance Engineer* develops and controls compliant engineering operations as appropriate to the context. This includes anticipation and resolution of problems arising during decommissioning engineering operations and the allocation of personnel or contractors to prepare for and carry out decommissioning engineering operations.		Entry level qualification ISCED 6

Roles / Functions

- Control and operation of decommissioning engineering operations as appropriate to the context
- Line management of supervisors and workers
- Contract and contractor management and compliance
- Project management
- Competence assurance of technical operations
- Compliance on statutory, legal, ethical and social implications relating to safety, health and the environment
- Legal/technical information management, inspection and reporting
- Knowledge management
- Typically reports to ...

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Engineering principles (as appropriate to the plant/equipment)	7
Advanced procedures for risk assessment and management	7
Engineering principles as appropriate to the context (ie mechanical, electrical, instrumentation and control)	6-7
ALARA principles as appropriate to the role	6-7
Statutory, regulatory and ethical requirements for nuclear safety as appropriate to the context	6
Techniques and methodologies of decontamination	6
Safety case standards as appropriate to the context	6
Safety management systems such as permit to work, standard operating & maintenance procedures and risk assessment as appropriate to the context	6
Principles of nuclear and radiological science and radiological protection	4
Standard procedures for dealing with radioactive discharges, waste, environmental control and emergencies	3
Safety, security and behavioural expectations of those working on a nuclear site	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Technical procedures as appropriate to the context	7
Technical authorship and reports	7
Range of manual and remote handling and decontamination and containment techniques	7
Identifying, quantifying and critically assessing safety hazards	7
Developing and implementing technical plans and procedures	7
Ensuring compliance with safety procedures and legislation	7
Implementing quality assurance and regulatory compliance	7
IT skills as appropriate to the context	6

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Leadership and management	7
Management of people, projects, contracts, information and knowledge	7
Complex communication via a range of media and conduits	7
Reliable, autonomous working as appropriate to the context	7
Influencing in a complex organisational environment	7
Motivating and delivering through others	7
Mentoring and coaching of others	7
Developing and maintaining productive working relationships	7
Reflective evaluative thinker	7
Safety culture	5

NOTES
In some cases Maintenance Manager and Engineer are tow different positions. Maintenance is mainly for the equipment that is remaining on the site. Specialisations: Mechanical – Electrical – I&C

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. MURPHY		
23.10.2012		

3.8.02	Job Title	Category
NPP – D Maintenance	**Maintenance Supervisor** Decommissioning Project Team Leader	Technical
The Decommissioning Maintenance Supervisor is responsible for the safe and efficient management of a team undertaking nuclear decommissioning activities. The Supervisor/Team Leader manages personnel and the processes for monitoring of equipment. This includes ensuring that Health & Safety legislative requirements are adhered to.		Entry level qualification ISCED 4-5

Roles / Functions

- Safe and efficient management of maintenance team and decommissioning operations
- Coordination of competence assurance and of technical operations
- Responsible for delivery of compliance to statutory, legal, ethical and social implications relating to safety, health and the environment, within scope of the role
- Coordination, compilation and overview of recording and reporting as appropriate
- Typically reports to the Decommissioning Maintenance Engineer

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
ALARA principles as appropriate to the role	4-5
Principles of radiological science and radiological protection	4
Routine engineering processes and procedures (as appropriate to the plant/equipment)	4
Standard procedures for risk assessment and management	4
Range of decommissioning processes	4
Breadth of techniques and methodologies of decontamination within scope	4
Basic engineering principles as appropriate to the context (ie mechanical, electrical, instrumentation and control)	3-4
Statutory, regulatory and ethical requirements for nuclear safety as appropriate to the context; eg waste management protocals and regulations	3
Implications and relevance for safety case standards and the nuclear site licence as appropriate to the context	3
Reasons for safety management systems such as permit to work, standard operating & maintenance procedures and risk assessment as appropriate to the context	3
Standard procedures for dealing with radioactive discharges, waste, environmental control and emergencies	3
Safety, security and behavioural expectations of those working on a nuclear site	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Recording, coordinating, compiling and integrated reporting of technical and regulatory data according to standard operating procedures	5
Implementation of safe access procedures in a controlled area	4
Handling of contaminated equipment, including minimisation and packaging	4
Decontamination, waste management, transfer and storage procedures	4
Waste management handling, transfer and storage procedures	4
Routine problem-solving in decommissioning	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Leadership and management	4

Influencing and motivating	4
Organisation and management of complex process	4
Safety culture	4
Comprehensive communication, literacy, ICT and numeracy	3

NOTES
Specialisations: Mechanical – Electrical – I&C

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. MURPHY		
23.10.2012		

3.8.03	Job Title	Category
NPP – D Maintenance	**Maintenance Worker** --	Craft
The Decommissioning Maintenance Worker controls and operates basic decommissioning/dismantling plant and equipment, including awareness and reporting of deviations from routine operating conditions.		Entry level qualification ISCED 2-3

Roles / Functions

- Control and operation of directed aspects of decommissioning engineering operations as appropriate to the context
- Supervised decommissioning engineering operations
- Adherence to competence assurance within scope of tasks as directed
- Deliver compliance to statutory, legal, ethical and social implications relating to safety, health and the environment within scope of tasks directed
- Recording and reporting as directed
- Typically reports to a team Leader/Supervisor

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
ALARA principles as appropriate to the role	3-4
Fundamental principles of radiological science and radiological protection	3
Basic engineering processes and procedures (as appropriate to the plant/equipment)	3
Basic engineering principles as appropriate to the context (ie mechanical, electrical, instrumentation and control)	3
Statutory, regulatory and ethical requirements for nuclear safety as appropriate to the context; eg waste management protocals and regulations	3
Routine decommissioning processes relevant to the context	3
Techniques and methodologies of decontamination within scope and as directed	3
Implications and relevance for safety case standards as appropriate to the context	3
Reasons for safety management systems such as personal protective equipment, permit to work, standard operating & maintenance procedures and risk assessment as appropriate to the context	3
Standard procedures for dealing with radioactive discharges, waste, environmental control and emergencies	3
Safety, security and behavioural expectations of those working on a nuclear site	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Preparation of controlled/contaminated work areas for decommissioning activities	4
Handling of contaminated equipment, including minimisation and packaging	4
Decontamination of equipment and materials	4
Waste management handling, transfer and storage procedures	4
Operate in a pressurised-suit	4
Routine disassembly and assembly of equipment	3
Operation and maintenance of tools and equipment	3
Operate ancillary equipment including fork lift trucks, cranes as appropriate to the context	3

Routine reporting according to standard operating procedures	3
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Safety culture	3
Routine problem solving	2
Basis communication, literacy, ICT and numeracy	2
Team working	2
Reliability to follow and complete tasks as directed	2

NOTES
Specialisations: Mechanical – Electrical – I&C

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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23.10.2012		

3.9.01	Job Title	Category
NPP – D HS&E	**Radiation Protection Manager** Radiation Protection Expert (RPE)	Professional / Technician
Implement and advice (on) Radiation Protection and Health Physics issues in order to ensure effective protection of individuals during the decommissioning of Nuclear Power Reactor		Entry level qualification ISCED 5-6

Roles / Functions

- Ensure the technical Radiation Protection support function to the dismantler
- Assist the dismantler in evaluating the individual and collective doses for different decommissioning strategies
- Dose commitment to worker and environment
- Health Physics Instrumentation and calibration
- Apply national and supranational Radiation Protection regulation
- Apply the ALARA principles and procedures in order to optimize the collective dose
- Verify the implementation of Radiation Protection rules (working zones classification)
- Elaborate emergency preparedness and response (with Site Manager teams and others)
- Environmental compliance

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Guidelines for the control of the work area	5-6
Working suits and personal protective equipment	5-6
Radioactive Material Transport	5-6
Nuclear ventilation	5-6
Surface contamination levels and / or air contamination	5-6
Cutting techniques and type of environment (sealed sources or not) to generate the least amount of aerosol	5-6
Dosimetry and shielding calculations	5-6
Radiation Protection and Nuclear Safety regulations and rules	5-6
Environmental monitoring and compliance (release, survey…)	5-6
Management knowledge	5-6
Initial radiological condition of the NPP	5
Radiological hazard analysis	5
Regulation and licensing	5
Emergency preparedness and response	4-5
Rules to achieve static or dynamic containment	4-5
Radiation detection and measurement (operational dosimeter, dose-rate meter…)	4-5

SKILLS (Technical competence, abilities)	EQF level (1-8)
Perform dosimetry and shielding calculations	5-6
Management capacities	5-6
Monitor and maintain a safe working environment	5
Monitor people during radiation related work activities	5

Monitor radiation levels of personnel and work places	5
Analyse data from the radiological past of the nuclear reactor	4-5
Make or make-do radiological cartographies of the installation	4-5
Propose or equip workers with adapted operational dosimeters and dose rates	4-5
Perform survey of environment	4-5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Exchange and make proposals for the ALARA implementation	6
Management attitudes	6
Interact with managers/technicians on the health and radiological history of the installation	5
Exchange with stakeholders on good RP and health practices to be implemented	5
Creative thinking	5
Inquiring mind	5
Have interpersonal skills adapted to non-traditional nuclear work situations (dismantling, dusty environment...)	5
Be able to explain the relative risk scales to various personnel for licensee and not licensee personnel	5

NOTES
Includes responsibilities for emergency planning. The job description includes also the functions of Health Physics Manager.

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M. CECLAN/S. LANZA		
26.10.2012		

3.9.02	Job Title	Category
NPP – D HS&E	**Radiation Protection Supervisor** Radiation Protection Officer (RPO)	Technician
Oversee the implementation of the Radiation Protection arrangements during the decommissioning of Nuclear Power Reactor under the supervision of the Radiation Protection Manager		Entry level qualification ISCED 5-6

Roles / Functions

- Realise the technical Radiation Protection support function to the dismantler under the supervision of the Radiation Protection manager
- Assist the dismantler in the follow-up of the individual and collective doses on the work floor
- Apply the ALARA principles and procedures in order to optimize the collective dose
- Involved in emergency preparedness and response
- Apply national and supranational Radiation Protection regulation
- Verify that the Radiation Protection rules are applied.
- Environmental compliance

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Practical rules to achieve static or dynamic containment	5
Radiation detection and measurement (operational dosimeter, dose-rate meter…)	5
Initial radiological conditions of the reactor	4
Guidelines for the control of the work area (best practices)	4
Working suits and personal protective equipment	4
Surface contamination levels and / or air contamination	4
Cutting techniques and type of environment (sealed sources or not) to generate the least amount of aerosol	4
Nuclear ventilation	3
Emergency preparedness and response	3
Environmental monitoring and compliance (release, survey…)	3
Common RP knowledge (1): Fuel cycle, plant systems and components, ALARA principles and procedures, safety culture, decommissioning principles, radioactive waste management principles, transport. External and internal dosimetry, protection against external exposure, protection against internal exposure, dose of workers, dose to the population, protective and corrective actions, regulatory framework, physical principles of detection, public / environmental issues, ethical considerations, accidents & emergency issues, radiological incidents evaluation and control. Mathematics, physics, atomic and nuclear physics, radioactivity, interactions of radiations with matter, quantities and units, dose monitoring, sample collection equipment, calibration of sources and equipment, airborne radioactivity control, environmental monitoring, natural & artificial sources, applications of ionizing radiation, biological effects and risks associated to exposure to ionizing radiation, basic biology, Public / Environmental issues, ethical considerations…	3
Management knowledge	3
Radiation Protection and Nuclear Safety regulations and rules	

SKILLS (Technical competence, abilities)	EQF level (1-8)
Analyse data from the radiological past of the nuclear reactor	4

Make (or make-do) radiological cartographies of the installation	4
Realise ALARA estimated dose	4
Apply Radiation Protection and Nuclear Safety regulations and rules	4
Propose or equip workers with adapted operational dosimeters and dose rates	4
Perform survey of environment	4
Management capacities	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Interact with managers/technicians on the radiological history of the installation	4
Exchange with stakeholders on good RP practices to be implemented	4
Have interpersonal skills adapted to non-traditional nuclear work situations (dismantling, dusty environment...)	4
Exchange and make proposals for the ALARA implementation	4
Management attitudes	4

NOTES
Common to the different areas (commissioning, operation and decommissioning)

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
P. LIVOLSI		
24.02.2012		

3.9.03	Job Title	Category
NPP – D HS&E	**Radiation Protection Worker** Radiation Protection Monitor	Craft
Accomplish Radiation Protection tasks during the decommissioning of Nuclear Power Reactor under the supervision of the Radiation Protection Supervisor		Entry level qualification ISCED 1-3

Roles / Functions

- Apply national Radiation Protection regulation
- Apply the ALARA procedures in order to optimize the collective dose
- Realize the control of radioactive wastes and working areas
- Verify the working zones classification
- Ensure that workers are equipped with appropriate safety individual equipment
- Make radiological cartographies of the installation

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Initial radiological condition of the NPP	2-3
Guidelines for the control of the work area (best practices)	2-3
Working suits and personal protective equipment	2-3
Nuclear ventilation	2-3
Surface contamination levels and / or air contamination	2-3
Cutting techniques and type of environment (sealed sources or not) to generate the least amount of aerosol	2-3
Rules to achieve static or dynamic containment	2-3
Radiation detection and measurement (operational dosimeter, dose-rate meter…)	2-3
Radiation Protection and Nuclear Safety regulations and rules	2-3
Environmental monitoring and compliance (release, survey…)	2-3
Emergency preparedness and response	1-2
SKILLS (Technical competence, abilities)	EQF level (1-8)
Make radiological cartographies and measurements in the installation	3-4
Apply Radiation Protection regulations and rules	3-4
Equip workers with adapted operational dosimeters and dose rates and verify	3-4
Propose appropriate shielding	3-4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Make proposals for the ALARA implementation or good practices	3-4
Make reporting	3-4
Have interpersonal skills adapted to non-traditional nuclear work situations (dismantling, dusty environment...)	2-3

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
P. LIVOLSI		
24.02.2012		

3.9.04	Job Title	Category
NPP – D HS&E	**Industrial Safety Engineer** Industrial Safety Manager	Professional
The industrial safety engineer is the responsible for the industrial safety of the workers and the site, for each of the activities.		Entry level qualification ISCED --

Roles / Functions

- To define the necessary protective measures for the decommissioning activities, and the needed individual or collective protective equipment
- To ensure that the protective measures are adequately applied, and the PPE (personal protection equipment) is worn at all times during the work, and adequately maintained
- To ensure the safety of the access to the work places
- To ensure that the work place is adequately signalled, clean and tidy
- To ensure that tools and machinery are used in a proper and safe way.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Personal and collective protection equipment	4
Risk assessment	4
Industrial/health safety	4
Building construction	3
Construction site supervision	3
Inspection of construction methods, machinery, tools and materials	3
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Using and interpreting drawings and documents	4
Planning, implementing, co-ordinating and monitoring work activities	4
Project planning	4
Inspection and control of works	4
Assessment of health and safety of works	4
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Decisiveness	5
Global vision	5
Planning and evaluation	5
Safety culture	5
Eye for detail / accuracy	4
Priority setting	4
Conscientiousness	3
Critical analysis	3
Inquiring mind	

NOTES

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M. MARTÍN RAMOS		
24.02.2012		

3.9.05	Job Title	Category
NPP – D HS&E	**Safety Case Expert** Decommissioning Plan Expert	Professional
The Safety Case Expert provides expert, researched, peer-reviewed safety analyses and strategy supported by evidenced documentation to form a fit-for-purpose safety case, in compliance with statutory, regulatory and technical requirements of the system being decommissioned, including health, safety, environmental, ethical and social considerations.		Entry level qualification ISCED 6-7

Roles / Functions

- Compliance assurance
- Legal/technical information management
- Safety case preparation, consultation, authoring, peer review and verification
- Safety case project management
- Standard setting for safety case processes and methodologies
- Quality assurance of safety case implementation
- Expert advice, guidance and recommendations
- Reports to.....

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
ALARA principles, as appropriate to the role	7-8
Advanced procedures for risk assessment and management	7
Engineering design and operation (of the plant/equipment being assessed)	7
Safety case standards and methodologies, including probabilistic evaluation	6
Requirements for 'due process' in nuclear safety case production	6
Statutory, regulatory and ethical requirements for nuclear safety	6
Safety management systems such as Permit to Work, Standard Operating & Maintenance Procedures and Risk Assessment.	6
Principles of radiological science and radiological protection	5
Standard procedures for dealing with radioactive sources, discharges, waste, environmental control and emergencies	3
Safety, security and behavioural expectations of those working on a nuclear site	3

SKILLS (Technical competence, abilities)	EQF level (1-8)
Review legislative, regulatory and technical literature	7
Identify, quantify and critically assess safety hazards	7
Author technical, evidence-based and compliant cases to minimise risks on safety, health and environmental matters	7
Project manage production, approval, implementation, review and evaluation of safety case strategies	7
Define the scope and strategy for safety case developments throughout the lifecycle of decommissioning	7
Monitor and periodically review and evaluate the processes for the adoption and implementation of safety cases, as appropriate to the design and operation of the plant/equipment being decommission	7
Implementing a robust schemes for quality assurance and regulatory compliance, including probabilistic risk analysis	7
Convene and consult with owners, users and stakeholders of the safety case strategies	7

COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Leadership and management	7
Interrogative attitude and research disposition	7
Complex problem-solving	7
Knowledge management	6
Influencing in a complex organisational environment	7
Motivating and delivering through others	7
Communication of complex information through a variety of media	7
Mentoring and coaching of others	7
Ceveloping and maintaining productive working relationships	7
Reflective evaluative thinking	6
Safety culture	7

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
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23.10.2012		

3.9.06	Job Title	Category
NPP – D HS&E	**Environmental Manager** --	Professional
To support the Project Manager on environmental protection issues and on to ensure compliance of decommissioning with the environmental safety principles, objectives and criteria		Entry level qualification ISCED 6-7

Roles / Functions

- To develop and implement adequate, up to date and effective environmental monitoring strategy, plans, procedures, etc in line with the NPP management system, national regulation and international standards and best practice;
- Analyse monitoring results and identify existing or potential effects of decommissioning to the environment;
- To coordinate the development, review and update of Environmental Impact Assessment for decommissioning;
- To supervise the environmental monitoring and provide feedback to the decommissioning management and input to the development/revision of decommissioning plan, Safety Assessment, EIA, etc.
- To monitor and regularly report on compliance with the national requirements, criteria and licence conditions related to environmental protection.

JOB REQUIREMENTS	
KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Environmental science (Biology, Chemistry, Physics, Ecology, etc)	7
Environmental legal framework (nuclear and other hazards)	6
Radiation protection.	5
Project management.	5
Human resource management.	5
NPP design, lifetime and decommissioning activities.	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Focus on safety and environmental protection.	7
Analytical skills.	7
Awareness and an understanding of up to date monitoring techniques and tools.	6-7
Strategic thinking.	6
Communication skills.	6
Computer literacy.	6
Stimulate discussions and facilitate negotiations in difficult situations.	5
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Initiative, recognising emerging problems and pro-actively develop solutions.	6
Self-motivated and be able to motivate staff at all levels.	6
Focus on delivery and accuracy.	6
Self accountability.	6
Establish effective networks within the company and with external organizations (e.g. regulators and other stakeholders.	6

NOTES
In some countries this job is included in radiation protection department.

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25.10.2012		

3.9.07	Job Title	Category
NPP – D HS&E	**Health Physics Technician** --	Technician
Execution of HP Measurements with portable instrumentations and process instrumentation		Entry level qualification ISCED 3

Roles / Functions

- Execution of HP Measurements with portable instrumentations and process instrumentation on dismantled materials during decommissioning and on plant areas and plant Systems during operation
- Works under responsibility of the health physician
- Record keeping of all measurements.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Radiation detection and instrumentation	3
Radiation dosimetry	3
Radiation safety	3
Radiation shielding	3
Radiological contamination	
SKILLS (Technical competence, abilities)	**EQF level (1-8)**
Draft Technical Specifications	5
Check and calibrate dose measurements instrument	5
Monitor and maintain a safe working environment	5
Monitor people during radiation related work activities	5
Monitor radiation conditions during work activities	5
Monitor radiation levels of personnel and work places	5
COMPETENCE (Attitude, behavioural and personal competence)	**EQF level (1-8)**
Perseverance	4
Multitasking	4
Result orientation	4

NOTES

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M.CECLAN / S.LANZA		
25.10.2012		

3.9.08	Job Title	Category
NPP – D HS&E	**Chemistry-Radiochemistry Manager** --	Professional
Is responsible for all aspects of the Chemistry program relating to analytical and radio-analytical data. This encompasses coaching and mentoring, training, procedures, scheduling, budgeting, laboratory and in-line analysis, quality control, regulatory interface, and regulatory requirements. Maintain Chemistry analytical and radio-analytical programs including all quality and regulatory aspects of the program.		Entry level qualification ISCED 5

Roles / Functions

- Provide a leadership role in the supervision of laboratory activities and projects. Provide coaching and mentoring for all laboratory activities
- Manages of liquid, solid and gaseous releases
- Optimize station's chemical processes
- Manage all sampling systems and the data management system
- Study and preparing of new radio analytical methods
- Participate and facilitate the training program.
- Manage and maintain the Chemistry budget for the laboratory.

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Chemical and Radiochemical instrumentation on line and off line.	6
Chemistry of liquid, solid and gaseous in NPP.	5
The fundamental principles and implications of radiation hazards.	5
The procedures for dealing with radioactive discharges, waste, environmental control and emergencies.	5
Analytical chemistry including statistical analysis and quality control methodologies	5
Principles of laboratory information management systems	5
Statistical analysis, quality control	5
ALARA principles as appropriate to the role	5
Statutory, regulatory and ethical requirements for nuclear safety as appropriate to the context; e.g. laboratory health safety and environment	5
Implications and relevance of the safety case and the nuclear site license	5
Standard and advanced procedures for dealing with radioactive discharges, waste, environmental control and emergencies	5
Standard operating procedures for sample analysis and equipment use	4
Reasons for safety management systems such as permit to work, standard operating & maintenance procedures and risk assessment as appropriate to the context	4
Safety, security and behavioural expectations of those working on a nuclear site	4

SKILLS (Technical competence, abilities)	EQF level (1-8)
Manage chemistry aspects during emergences	5
Evaluation of critical Pathways in the environment	5
Evaluation of percentage of discharge Formulas of Site	5
Produce synthesis Reports and evaluate critical points	5
Controlling workplace hazards and managing the health and safety of others.	5
Ensure compliance with legal, regulatory, ethical and social requirements	5

Ensure laboratory health and safety and compliance with legal, regulatory, ethical requirements.	5
Waste management handling, treatment, transfer and storage	5
Characterization of radionuclide content of solid, liquid and gaseous samples based on non destructive analyses and lab analyses	4
Plan laboratory workflow	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Comprehensive communication, literacy, ICT and numeracy	5
Reliability and autonomy under direction	5
Safety culture	5
Negotiation skills	5
Team working	5

NOTES
Includes responsibilities for emergency planning. The job description includes also the functions of Health Physics Manager.

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
M. CECLAN/S. LANZA		
26.10.2012		

3.9.09	Job Title	Category
NPP – D HS&E	**Nuclear Laboratory Technician (Chemistry)** Chemical Analyses Technician / Quality Control Technician / Radiochemistry Technician	Technician
The Nuclear Laboratory Technician (Chemistry) is responsible for chemical sampling preparation and analytical procedures. This role includes both routine and complex analysis.		Entry level qualification ISCED 3

Roles / Functions

- Perform both routine and complex sampling and analysis, and run routine reports
- Maintain database of analytical results and audit trail according to regulatory requirements
- Handle safely and appropriately samples that are potentially hazardous and/or contaminated
- Typically reports to a Scientific Manager

JOB REQUIREMENTS

KNOWLEDGE (Cognitive competence)	EQF level (1-8)
Analytical chemistry including statistical analysis and quality control methodologies.	6
Principles of chemical science.	5
Principles of laboratory information management systems.	5
Statistical analysis, quality control.	5
ALARA principles as appropriate to the role.	5
Statutory, regulatory and ethical requirements for nuclear safety as appropriate to the context; e.g. laboratory health safety and environment.	4-5
Implications and relevance of the safety case and the nuclear site license.	4-5
Fundamentals of radiological science and radiological protection.	4
Standard operating procedures for sample analysis and equipment use.	4
Standard and advanced procedures for dealing with radioactive discharges, waste, environmental control and emergencies.	4
Reasons for safety management systems such as permit to work, standard operating & maintenance procedures and risk assessment as appropriate to the context.	3
Safety, security and behavioural expectations of those working on a nuclear site.	3
SKILLS (Technical competence, abilities)	EQF level (1-8)
Chemical techniques for sample preparation and analysis	5
Data analysis and reporting	5
Organise and maintain data records and tracking systems in accordance with compliance requirements	5
Organise and maintain stock and control of laboratory chemical inventory	5
Waste management handling, treatment, transfer and storage	5
Plan laboratory workflow	4
Maintain and organise maintenance and servicing schedule of analytical equipment	4
COMPETENCE (Attitude, behavioural and personal competence)	EQF level (1-8)
Comprehensive communication, literacy, ICT and numeracy	4

Reliability and autonomy under direction	4
Safety culture	4

NOTES
Job description to be checked against the counterparts in NPP–O, 2.5.03, 2.5.04

DRAFTED BY:	1ST REVIEW:	2ND REVIEW:
B. MURPHY		
26.10.2012		

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Abstract

This report intends to summarise the developments in the preparation of a Nuclear Job Taxonomy, undertaken by the Institute for Energy and Transport of the Joint Research Centre, European Commission, as part of the institutional action CAPTURE. It provides an overall background on the European Credit System for Vocational Education and training (ECVET) followed by the motivations of the project, the conceptual and methodological approach, the progress achieved and the expectations for the near future.

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Key policy areas include: environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; safety and security including nuclear; all supported through a cross-cutting and multi-disciplinary approach.

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